ARMED FORCES management

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FEATURES

A Report on the Navy Reorganization Debate 13

The suggestions for reorganizing the Navy which were contained in the Franke Committee's report have touched off a storm of controversy. This AFM Staff Analysis runs down the major points in the Organization study, the arguments which have been voiced against it, and the reasoning which was behind the Committee's recommendations.

Time . . . The Resource We Mis-manage Most 18

On the average, it takes the U.S. from seven to ten years to get a new concept from the idea stage to hardware—the Russians do this in about half that time. This is what Army is doing to cut back this gap—a "gap" which could eventually proove more critical than the so-called missile gap.

How Renogiation Cuts the Cost 22

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How Workers Get the Word 27

There is no single factor more important to good management than that of communications. The channels may be formal or informal, but they are unquestionably necessary. This, according to one study, is how the channels of communication work.

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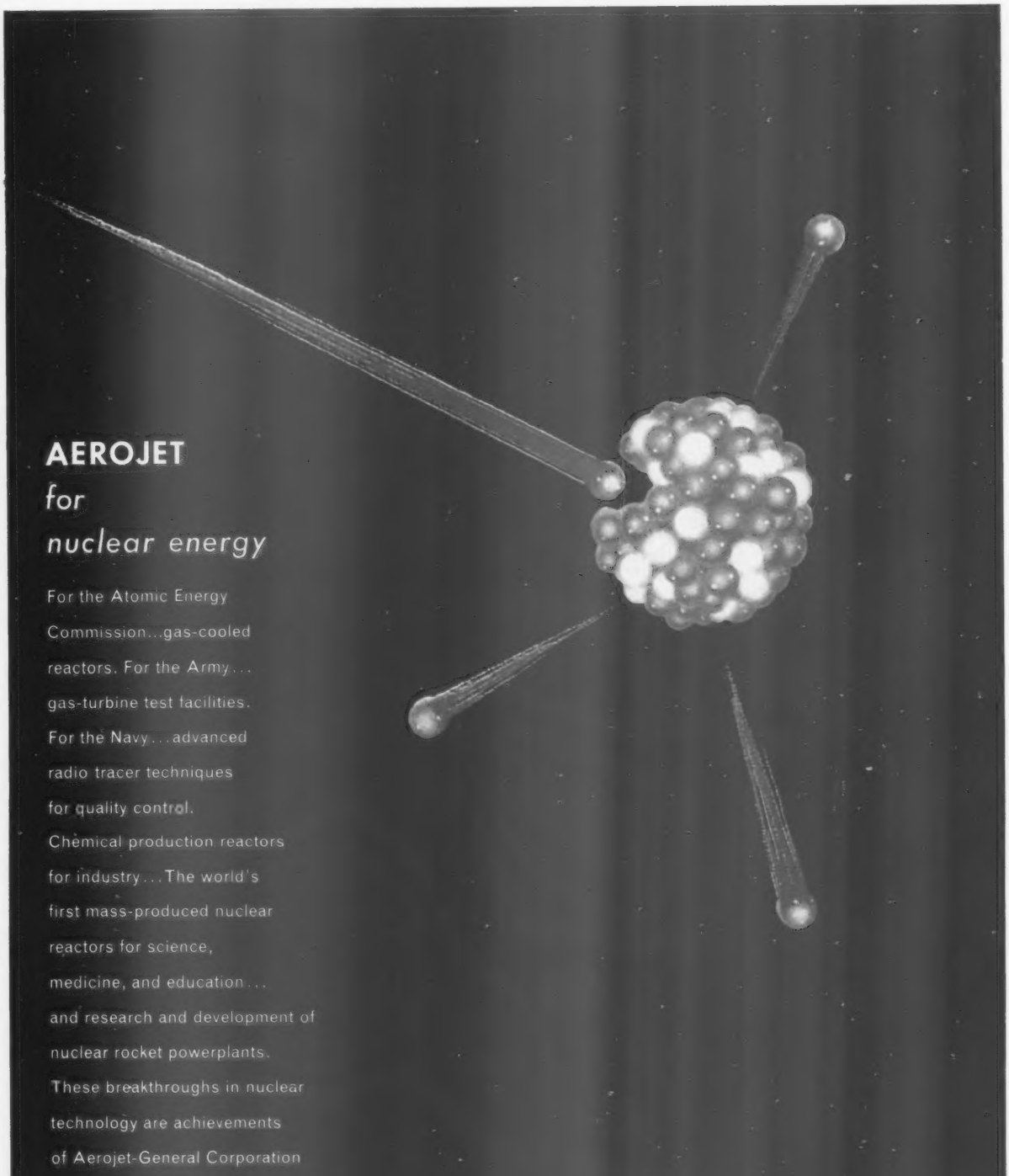
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The Authority to be Wrong

BECAUSE decisions are the result of human judgement, the risk of human error is a recognized pitfall of being the boss—in private enterprise. It is accepted, even expected, that men are going to make mistakes. The trick is to spot and correct them quickly. The rule: try, but don't expect, to be right 100% of the time.

In the Washington military complex, however, there is a fairly unique but deadeningly prevalent canard that public servants are supposed to appear infallible. To some extent, this is a carry-over from the military attitude toward command. (For "morale" purposes, the CO is always right —even when he's wrong.) To some extent, too, it's probably a reaction to public charges that the military is, by nature, wasteful and inefficient.

But, mostly it's just an excessively enthusiastic attempt to prevent mistakes. Why is it necessary to place any more control on a man than just enough to prevent his getting too far off base? Why do "cognizance" officials require a *detailed* accounting of decisions—frequently before the decisions are made? "Echelons of coordination" have grown up like weeds in the Pentagon-White House-Capitol Hill operation.

Generals and Admirals like Medaris, Thach, Schriever, Power, ad infinitum, make almost constant pilgrimages to the Washington bottleneck for a nit-pick-length accounting of what they intend to do and why—often to lower-ranking officials. To preserve the facade of errorless operation, the necessary democratic system of checks and balances has been carried to a ridiculous extension.

Decisions are, in effect, being made by a majority vote of various levels of authority. Keeping your skirts clean (called CYA in Pentagon slang) has become as vital for too many Washington people as getting the job done. Errors are still made—and always will be. ("But, with all those names on the buck slip, who can pin it on me?")

This negative philosophy has thrown the whole military management structure into a defensive frame of mind. A great many people have the power to say, "no;" few have the power to say, "yes." Civilians make military decisions. (In a choice between two missiles, for instance, which one do we buy?) Worst of all, authority to decide has been divorced from responsibility for the result.

Trying to chop through this jungle of immobility is a monumentally frustrating task. There are signs some men are trying. Defense Secretary McElroy's war on committees is one. Army General Trudeau's charge at hardware leadtime is another. Navy's Special Projects office attributes its management success in no small part to the Director's being given "not only the responsibility to be right . . . but also the authority to be wrong."

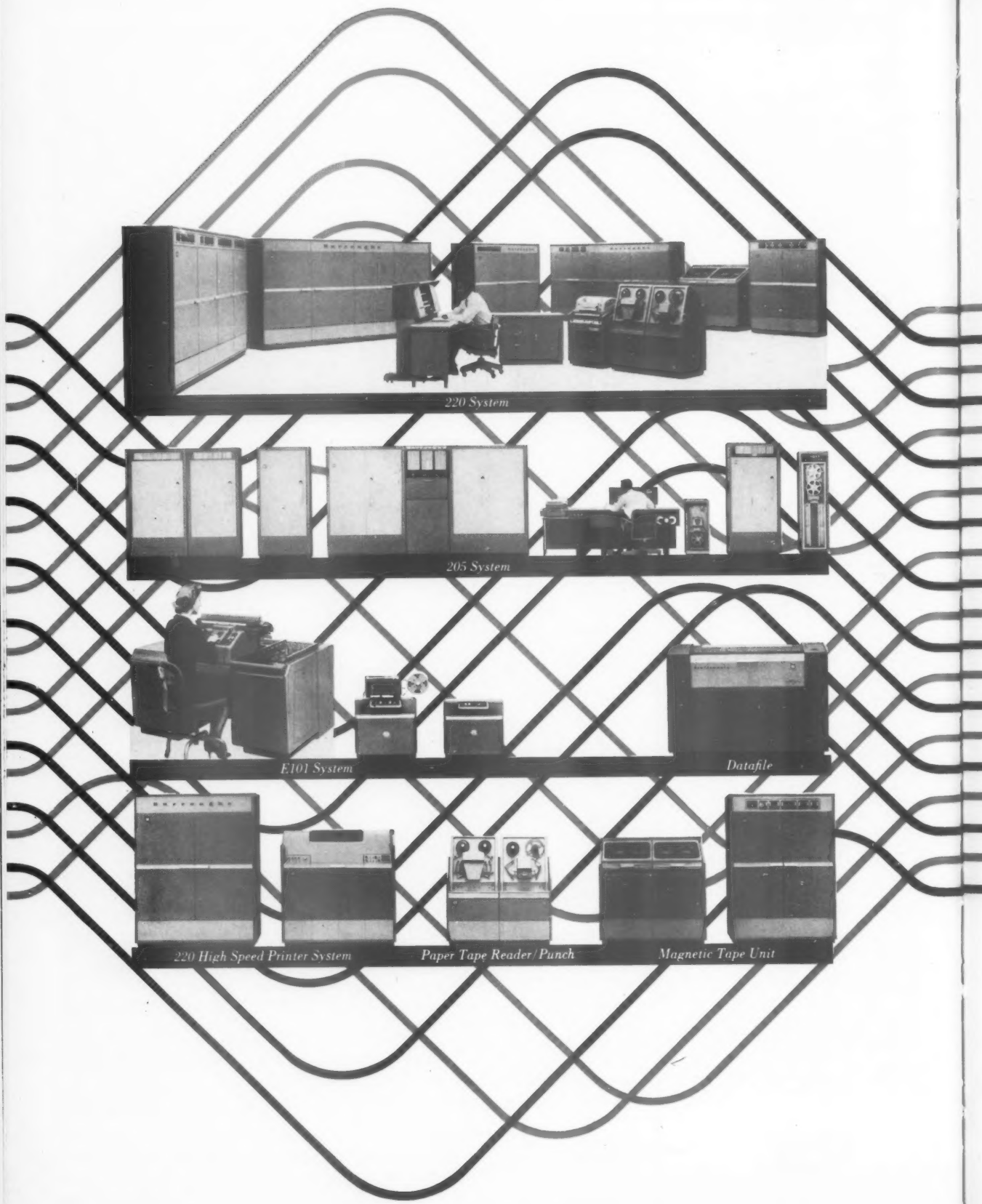
Unfortunately, there are not enough such efforts. The most appalling waste in paying tribute to this buck passing enigma is not money or natural resources—although this waste is appalling enough. The real loss is dissipated manpower. People exposed to the Pentagon very long are usually highly impressed with the wealth of brainpower which works there. Rarely, however, does any of this talent glimmer to the outside. It is swallowed up in a morass of double checking.

Epitome of all this was the gripe of an Air Force general: "They (the Pentagon) keep telling us to delegate, delegate. And in the next breath they say, 'but check with us first.'"

(The only laughable aspect of all this is that a great many of the mistakes we seek to prevent, even if made, would not cost as much by any standard as we spend to prevent them.)

Asked about his responsibilities, the president of an industrial firm said recently, "I assume that everyone in my organization wants to be successful. It is my job to see that they are." The real question before the Pentagon is how many top officials are going to stake their success on the ability of their subordinates—and how soon?

Bill Borklund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Washington Background

GENERAL ACCOUNTING OFFICE MAY REPLACE the Bureau of the Budget as Pentagon's primary target in the event of all-out war. A rash of recent after-the-fact GAO blasts at Defense Department have sometimes slipped beyond GAO's auditing and finance boundaries.

EVEN CONGRESS SLAPPED GAO on the wrist late last month for "stepping out of its sphere of competence" in criticizing Saltonstall's (weapons systems) procurement bill. Pentagon is irked for at least two reasons: GAO accountants tend to look only at dollar signs, discount the rest of the forest (time, military necessity, risk, company capability); GAO fails invariably to note that black mark they're handing out represents only a minute fraction of what might happen if Defense did not have a top-notch contracting outfit in the first place, a sharp auditing setup of its own in the second.

FOR THAT MATTER, AN INVESTIGATION OF GAO itself might be in the wind, possibly yield heady results. GAO field teams sometimes appear to strain hard after "errors" just so the "dollars saved" will justify the expense of having them there in the first place. Examples: 75 GAOers just spent several months at a New York electronics firm, finally in frustration stretched a point to put one "maybe" item on their list. Recent blast at a "name" firm came after three year investigation, amounted to crying over spilt milk. Contractor and Service involved had already noted foul up, taken steps to correct it.

HOUSE ARMED SERVICES INVESTIGATION SUBCOMMITTEE, probing weapon system purchasing operation, is handing out gold stars, generally, to way concept is working. North American Aviation's Atwood, Lockheed Aircraft's Gross, just by relating facts and figures, not only earned applause in military circles for their approaches to the concept but also went far toward proving approach is basically sound. Net effect: concept, so far at least, is in no serious danger of being shot down.

WHAT MAY GET THE AX are staffs of Pentagon weapons chiefs. House wants to know why they're still around if, as claimed, bulk of arms management, once handled by Pentagon, is now being done by manufacturers.

DEFENSE SECRETARY'S OFFICE IS PLANNING an investigation of how well Services are using electronic data processing facilities, are tightening screws on requests for new equipment. (Both Air Force and Navy were turned down recently on big projects which by old standards would probably have gotten through.) Observers are predicting inquiry will uncover extensive mis-use of equipment, woeful failure to utilize full management potential. Outcome: Military EDP honeymoon with the front office is over.

FEDERAL AVIATION AGENCY, IN WHICH particularly Air Force has large-sized interest, is reported to be a management monstrosity. Word is, there is No. 1, Elwood Quesada, and no one else. Everyone reports to him. There is almost no inter-department liaison, little delegation of authority. Net result: organization is staggering, may fall flat on its face.

TOP NAVY ADMINISTRATORS ARE PERPLEXED over Sen. Dodd's (D., Conn.) proposal that Navy establish a Bureau of Submarines. Debate, soon to reach Congress, will, they say, "prove interesting." Chances of a BuSubs: not good.

AIR FORCE PROPOSAL THAT A UNIFIED STRATEGIC FORCE be set up has ruffled some Pentagon feathers. The Force, essentially a broadening of Strategic Air Command to include Polaris-carrying submarines, is under JCS study. Chief headache: how to solve communications and tactical control problem between Strategic Force ships and planes and Service craft in same area, prevent their attacking each other. But, over the long haul, one general observed, "This looks significantly like a giant stride toward a truly unified military service."

SAC Chief Indicates Deterrent Slippage

U.S. deterrent posture is "deteriorating," according to testimony by Strategic Air Command Chief Gen. Thomas Power before the House Appropriations Committee.

Defense Secretary Neil McElroy later told a Pentagon news conference that he had never known "a commander of operating forces—of which Gen. Power is one—who has felt that he had enough to do his job." McElroy said he had "greatest faith" in the ability of the Joint Chiefs of Staff to accurately evaluate the overall defense posture of the nation.

Power said "The rate at which [our deterrent power] deteriorates will depend on the rate of progress in relation to the Russians. Let us put it this way: I think we are in a neck-and-neck race. You cannot win a race until you go over the finish line. I think it behooves us to assess the position of our opponent and take whatever necessary action is required to cross the finish line first."

Power proposed changes including alert pay for ground-alert crews, spot promotions, more money, top priority on the Hound Dog missile, more planes, and fast production on Titan and Atlas missiles.

Space Panels Scored By Navy R&D Chief

Vice Adm. John T. Hayward, Deputy Chief of Naval Operations for Research and Development, has charged that the many space panels now in existence have no real authority, and exist simply as channels of communication.

Hayward told the Senate Space Subcommittee that he doubted the usefulness of these panels, set up "for practically every purpose, usually two or three for each project." Hayward also said that subcommittee chairman Stuart Symington was essentially right in saying that the civilian/military liaison committee was a "debating society" rather than a decision making body.

The Navy research chief said that the only reason that there is a reasonably smooth space development program is that there is a determination in both civilian and military areas to make the program work.

Hayward charged that many people are making decisions that won't affect them if the decisions are wrong. He feared the military services "are uncomfortably close to the end of the U.S. space chain." Summing up, VAdm. Hayward said he thought the present U.S. space setup "is just about the most complicated way of doing business I can think of."

OSD Leadership Lacking, Says House Committee

Office of the Secretary of Defense is not exerting enough leadership in the hard fight for greater reliability in complex weapons, according to a report from the House Appropriations Committee.

The report called the present OSD attitude "unfortunate," and said "it is believed that optimum reliability is a desirable characteristic for all military procurement and a critically important one for all ballistic missiles; further, that this characteristic is achievable in a greater degree and more efficiently if pursued through vigorous service programs supported by strong interservice and interprogram coordination, cooperation and leadership."

The report criticized such specific instances as the Office of the Director of Guided Missiles, the Office of the Assistant Defense Secretary for Supply and Logistics, Army's arsenal concept, the Air Force/STL arrangement and the former Assistant Secretary for Research and Engineering office.

Anti-Missile Defense Urged by Partridge

An urgent need for fast development of a ballistic missile defense has been cited by Gen. Earle Partridge, Chief of the North American Air Defense Command. Gen. Partridge also testified before the House Appropriations Committee that there was much to be done to make his operation fully effective under the 1958 Defense Reorganization Act.

Partridge expressed his wish for a "less cumbersome" way of doing business than the one set up under the reorganization. Under this, all problems in such matters as funding must be referred to JCS, and through them to the Secretary of Defense. The problems would then be referred to services involved.

Other problems cited by Partridge included need for long range interceptors to insure positive identification, and more complete integration of all defense operations into NORAD-COM.

Navy Over-ruled On ASW Funding

Navy's bid for additional anti-submarine warfare money was over-ruled by higher Defense Department authorities, hearings before the House Appropriations Committee have revealed.

Chopped out of the Navy budget was an extra $141 million for 91 ASW aircraft, and additional funds for development of a replacement for the P5M Martin Mariner. These figures were handed to the House Committee as "additional requirements for anti-submarine warfare," and not necessarily as a request for more money.

Included in the original ASW funds sought was $71 million for research, development, test and evaluation. This would have to be used for seaplane development, ASW helicopter development, acceleration of development of new ASW torpedoes, improved underwater communications and other improvements.

MATS Hearings Set Early This Month

The perennial harangue between Military Air Transport Service and the House Military Government Operations Subcommittee is scheduled tentatively to begin on 11 May this year. The Holifield subcommittee will ask the military organization whether or not they have carried out recommendations which resulted from last year's hearings.

Last year the committee charged that MATS was competing with the commercial airlines on both passengers and cargo, and recommended that responsibility for these areas be left to the commercial carriers.

The House group also recommended that MATS modernize its fleet, concentrating on aircraft to haul out-size cargo which wouldn't fit on commercial planes. The committee has reportedly found fault with a written report on MATS' compliance with these recommendations.

As usual, the committee's investigation will hinge on such questions as the amount of money spent by MATS on commercial services, the readiness of the Civil Reserve Air Fleet, and MATS "getting out" of the passenger business.

DYNA-SOAR

Dyna-Soar (for dynamic soaring) is a joint project between the Air Force and the NASA, and is an attempt to solve the technical problems of manned flight in the sub-orbital regions. Advance knowledge on the project indicates how a boost-glide vehicle can operate from the outer fringes of the atmosphere where it can maneuver and be recovered undamaged. Studies show that by varying the original rocket boost, and thus the velocity, and with the control available to the pilot, the Dyna-Soar aircraft can circumnavigate the earth, followed by a normal and controlled landing. Boeing Airplane Company, one of the competing companies for the development contract for the complete boost-glide system, has delegated to RCA the responsibility for the development of important electronic components of Dyna-Soar.

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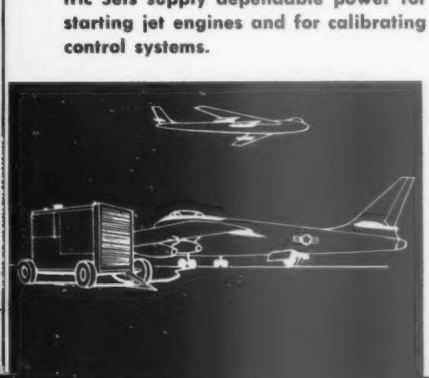

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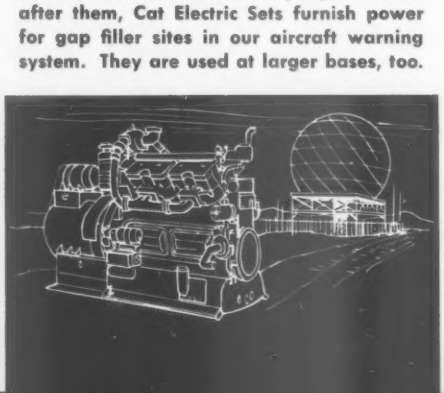

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A Report on . . .

Navy's Reorganization Debate

In Brief:

The Report of Navy's Committee on Organization has stirred up a beehive of comment, controversy, and conversation in Navy circles. Final action on some key points may take years to complete.

Boiled down, the report covers three major areas significantly:

1–Research and Development (give it more importance in the office of the Chief of Naval Operations)

2–The Bureau system (merge BuAeronautics and BuOrdnance into a single Bureau of Weapons)

3–Officer Career Specialization

The first one is already on its way to adoption. The second will occur but is going to take a little longer. Number three is being bombed hard and frequently, but, in some form or other, will pass.

IN the covering letter to Navy Secretary Thomas S. Gates, Jr., Navy's Committee on Organization* said, "It has been a liberal education." They were referring to their just-completed seven-months-long study of the Navy organization. Based on the furor created by some of the proposals, their education (and that of many observers) was just beginning.

The character of this committee, itself, has given special emphasis to its own recommendations. Unlike similar committee groups which are investigating something in the Department of Defense all the time, these men are in a position to act on their own proposals. By the time you read this, committee chairman Franke will probably already have taken over as Secretary of the Navy; and, if it were not for a rather unexpected extension of Adm. Arleigh Burke's tour of duty, committee member James Russell was slated to move up to Chief of Naval Operations. Even so, his present influence is impressive.

For that matter, one of the primary reasons for extending Burke's tour was to keep momentum behind this reorganization. There is no question that where he has the authority he had done just that. In fact, Burke had already picked the man to be Deputy Chief of Naval Operations for Development (VAdm. J. T. Hayward) before the recommendation that there be one at all had even been published.

Generally speaking, the committee recommended over 30 changes to the present Navy organization of varying degrees of importance. Most the Navy can implement itself. Some need Congressional approval. These are the highlights:

Congress Must Approve:

- Reestablishment of a fourth Assistant Secretary (which the 1958 Defense Reorganization Act says is to be eliminated).
- Establishment of a Bureau of Naval Weapons (by merging BuOrd and BuAer).
- Elimination of the restricted line officer designation; setting up a Naval Technical Corps; and providing for appropriate transfer of officers.
- Authorization for postgraduate education of line officers in law.

Navy Secretary Can:

- Rewrite General Orders 5, 9, and 19 (which cover command of Navy operating forces) to conform to unified and specified command authorities spelled out in the 1958 Reorganization Act.
- Establish Navy Department Policy Council (to include Navy's Secretary and Under Secretary, Chief and Vice Chief of Naval Operations and the Marine Corps Commandant).
- Make greater and "more objective" use of the Executive Committee.
- Eliminate Asst. SecNav (Personnel and Reserve Forces) and designate an Asst. SecNav (Research and Development).
- Transfer civilian personnel ceiling control function to Comptroller.
- Reassign scientific data collection and development coordination from ONR to new DCNO (Development) and reassign responsibility for administering R&D appropriation.

Chief of Naval Operations Can:

- Establish and assign functions and personnel to DCNO (Development).
- Designate the Director, Naval Communications as Asst. CNO (Communications) as well.
- Transfer several DCNO (Air) functions to other DCNOs, consolidate designated Sea Frontiers with Naval Districts.

At presstime, Gates, in what will probably be his last significant Navy action, was due to act on all the recommendations. Some of the recommendations (if accepted) are going to be as much as several years away from implementation—just as Defense Department's 1958 Reorganization Act did not automatically create the organization it said would now exist.

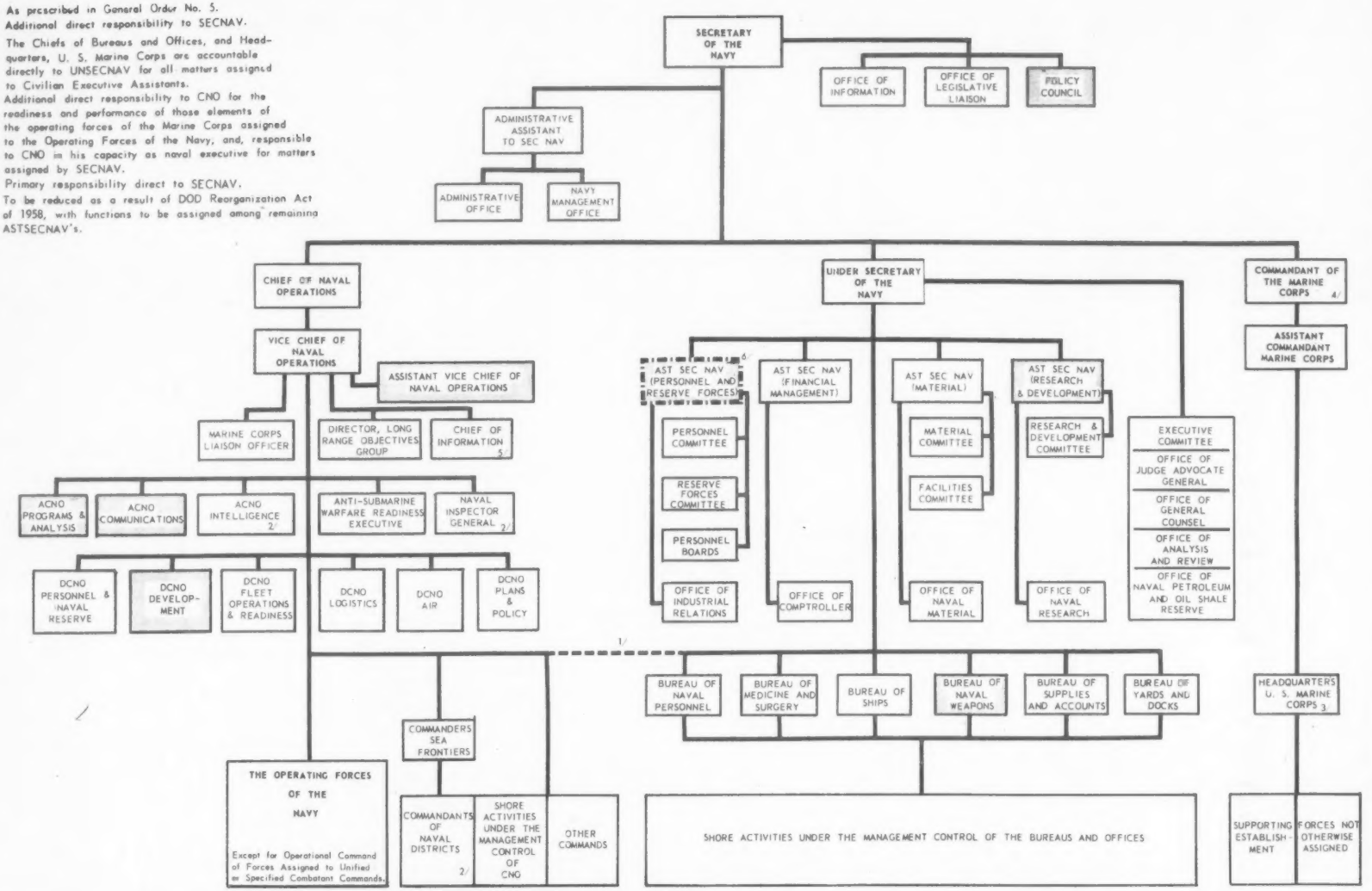
The influence of Red Raborn's Special Projects Office can be spotted, between the lines, in several sections of the report—although his management success is not by any means the sole cause of some of the report's results. Navy admirals, most of whom have been through his two-hour briefing on project progress, have been impressed, even enthusiastic, with the setup. Problem, said one of the committee's staff men, is that "too often, the reaction has been 'It's great but our office can't use it.'"

In any event, how well the committee's recommendations tally against what is finally done is beside the point. Pentagon organization has always been in an almost constant state of flux—and probably always will be. Of far more value to the Navy has been the committee's role as a catalyst. It has pulled many of the Navy's toughest top management problems out of the bull session and the cocktail debate, held them up for public scrutiny and called for an answer.

**Chaired by Gates' successor, Under Secretary William B. Franke, committee included Navy Assistant Secretary (Material) Fred Bantz, Vice Chief of Naval Operations James S. Russell, Gates' Administrative Assistant John H. Dillon, Lt. Gen. M. B. Twining, and Rear Admirals E. P. Holmes and T. H. Moorer.*

Organization of the Department of the Navy Proposed by the Committee

1/ As prescribed in General Order No. 5.
2/ Additional direct responsibility to SECNAV.
3/ The Chiefs of Bureaus and Offices, and Headquarters, U. S. Marine Corps are accountable directly to UNSECNAV for all matters assigned to Civilian Executive Assistants.
4/ Additional direct responsibility to CNO for the readiness and performance of those elements of the operating forces of the Marine Corps assigned to the Operating Forces of the Navy, and, responsible to CNO in his capacity as naval executive for matters assigned by SECNAV.
5/ Primary responsibility direct to SECNAV.
6/ To be reduced as a result of DOD Reorganization Act of 1958, with functions to be assigned among remaining ASTSECNAV's.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ASSISTANT COMMANDANT MARINE CORPS
1/
BUREAU OF NAVAL PERSONNEL
BUREAU OF MEDICINE AND SURGERY
BUREAU OF SHIPS
BUREAU OF NAVAL WEAPONS
BUREAU OF SUPPLIES AND ACCOUNTS
BUREAU OF YARDS AND DOCKS
HEADQUARTERS U. S. MARINE CORPS 3/
COMMANDERS SEA FRONTIERS
THE OPERATING FORCES OF THE NAVY
Except for Operational Command of Forces Assigned to Unified or Specified Combatant Commands.
COMMANDANTS OF NAVAL DISTRICTS 2/
SHORE ACTIVITIES UNDER THE MANAGEMENT CONTROL OF CNO
OTHER COMMANDS
SHORE ACTIVITIES UNDER THE MANAGEMENT CONTROL OF THE BUREAUS AND OFFICES
SUPPORTING ESTABLISHMENT
FORCES NOT OTHERWISE ASSIGNED

1 *Boost for Research*

OF the significant Franke committee recommendations, the one already well down the road to implementation is that concerning research and development organization in the Chief of Naval Operation's office.

Until a few weeks ago, men in CNO with R&D responsibility were fragmented all over the ball park. Franke has recommended, in effect, that they all be pulled together. The reason: Arleigh Burke has a pressing need for the counsel of one man, a man with the ability and stature to answer for the Navy on R&D matters. Side effect: a one-office control will be more efficient for weapon systems planning and programming.

Only flaw in the proposal was the recommendation concerning funding. Committee took what many observers consider a rather naive approach that funding was essentially just an accounting procedure. Dollar control, to be realistic, must be a good deal more. It requires an almost constant elbow-rubbing by R&D men themselves with their scientists and engineers—particularly in the basic areas.

Because the king pins in this new setup already have the funding control pretty much as they want it, funding procedures will probably stay just about as they were before the committee published its report. Net result of adopting the Franke recommendations has been a big boost in the stature of research and development—in essence, an organizational reaction to facts of life the Navy already recognized.

Most significant fact unearthed by the committee in its investigation of the R&D organization was hardly noted in all the published comments about the report. The fact: how the boxes are arranged on the organization chart is neither the beginning nor the end of the answer. What names go into the boxes is the determination of success. In other words, the best organization is the one which best serves the people in it. It must serve, not direct the managers.

Men inside the Navy have long known who the driving forces behind R&D were. This reorganization, basically, just gives them the authority to do what they once had to accomplish by argument, cajolery and sales pitch. What is more, there should be no doubt in anyone's mind now about the identity of the top Navy R&D officers.

They are: Admirals Rawson Bennett, chief of the Office of Naval Research, and J. T. Hayward, the first Deputy Chief of Naval Operations (Development). As a matter of fact, Hayward's job title is a carefully conceived description. It makes clear that he and Bennett will work, as they do now, as a two-man team.

To both men, this is the one essential key to their past, present and future success. Said one, "We would be in real trouble if we didn't understand and appreciate each other. We work very well together. With two different men in here, it might be a completely different story."

The committee's recommendation that development coordination and scientific data collection, and the staffs that do these jobs, be transferred from ONR to the new DCNO (Development) has been interpreted by some as a down-grading of ONR. Neither Hayward nor Bennett interpret it this way. Development coordination is a sort of efficiency expert operation in R&D. The job, essentially, is monitoring the whole Navy R&D program, avoiding duplications. Said one, "It doesn't make a lot of difference where they are on the organization chart just as long as they're there somewhere. As a matter of fact, their physical location (in ONR office space) will probably remain the same."

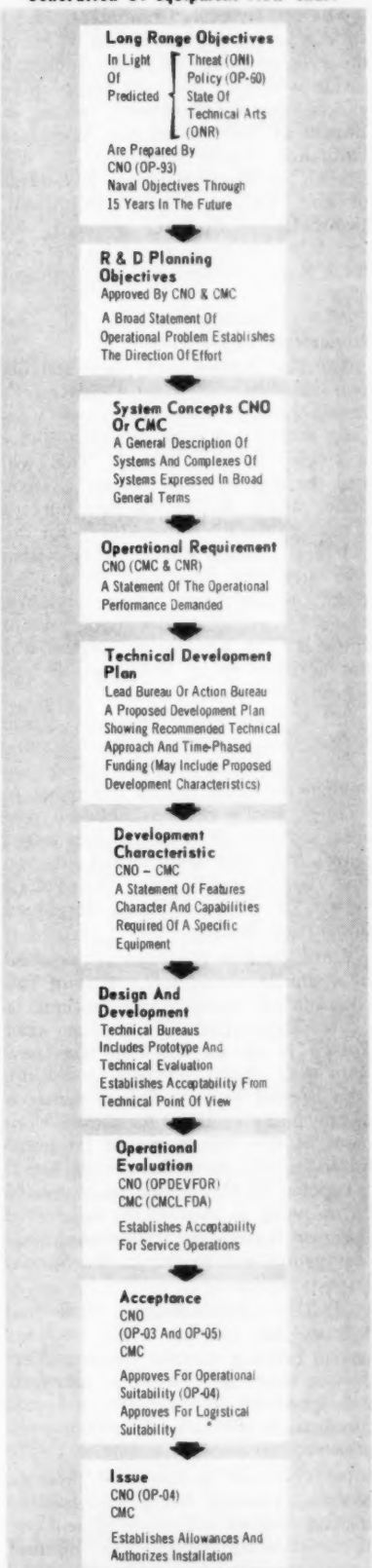
A significant sidelight of the committee's R&D investigation was the discovery that there is only a vague idea throughout the Navy of just how the R&D cycle from concept to hardware breaks down, and just how it is handled. Diagrammed at right are the normal steps in weapon or weapons system development. Said the committee, "Since they have only recently been formalized, they have not been followed completely in the past."

They added, "Certain of these steps should be virtually continuous in their operation throughout the development phase of any weapon. For example, study of the time, cost, and probability factors of feasibility, and reconsideration of the Operating Requirement in relation to these factors, should be a continuing process during the cycle of weapons system development."

Implied throughout their comments and suggestions on Navy R&D operations was the observation that the producers must take immediate steps to get closer to the fleet in hardware development. One of Hayward's primary goals in working out the details of his new setup will be to delegate as much authority as possible down into his organization (and thus, presumably, closer to the fleet) without his losing control.

RESEARCH AND DEVELOPMENT

Generation Of Equipment Flow Chart


Long Range Objectives
In Light Of Predicted
Threat (ONI)
Policy (OP-60)
State Of Technical Arts (ONR)
Are Prepared By
CNO (OP-93)
Naval Objectives Through 15 Years In The Future
R & D Planning Objectives
Approved By CNO & CMC
A Broad Statement Of Operational Problem Establishes The Direction Of Effort
System Concepts CNO Or CMC
A General Description Of Systems And Complexes Of Systems Expressed In Broad General Terms
Operational Requirement
CNO (CMC & CNR)
A Statement Of The Operational Performance Demanded
Technical Development Plan
Lead Bureau Or Action Bureau
A Proposed Development Plan Showing Recommended Technical Approach And Time-Phased Funding (May Include Proposed Development Characteristics)
Development Characteristic
CNO – CMC
A Statement Of Features Character And Capabilities Required Of A Specific Equipment
Design And Development
Technical Bureaus
Includes Prototype And Technical Evaluation
Establishes Acceptability From Technical Point Of View
Operational Evaluation
CNO (OPDEVFOR)
CMC (CMCLFDA)
Establishes Acceptability For Service Operations
Acceptance
CNO
(OP-03 And OP-05)
CMC
Approves For Operational Suitability (OP-04)
Approves For Logistical Suitability
Issue
CNO (OP-04)
CMC
Establishes Allowances And Authorizes Installation

2 *Marry the Bureaus*

FROM a dollar standpoint, there can be no question about which of the proposed changes in Navy organization will have the most far-reaching effects—the recommended merger of Bureau of Aeronautics and Bureau of Ordnance would combine in one Bureau of Naval Weapons two-thirds of the Navy's shore establishment, two-thirds of all Navy material, and by dollar volume, two-thirds of the total Navy research and development effort.

The Committee cited the following advantages to be gained:

(1) The merger will place roughly two-thirds of the Navy Department's development effort—and most weapons system development work—under a single, direct authority. This will end the present "lead bureau" system, under which one of the two Bureaus is given primary responsibility for developing a given project. This system was originally developed as an "interim measure" to allow work on systems involving the two present Bureaus. The lead bureau system was not designed to be ideal, and at best served only limited ends.

(2) It will place under a single bureau most of the split-cognizance trouble spots in weapons system development—with specific reference to missiles, and gray areas between missiles and aircraft. The question raised here is the "split cognizance" situation that would exist with the Polaris system if it were being developed under the Bureaus.

Until Bureau of Ships is included in a similar arrangement, part of this coordination problem will continue to exist. The report states that after Polaris is on its way and the new Bureau of Naval Weapons is set up, "the Special Projects Office, which is assigned responsibility for the development of the Polaris should be transferred to the new Bureau of Naval Weapons. In the future there should be no need, in view of the mission of this new bureau, for the establishment of organizations similar to the Special Projects Office."

(3) The double-Bureau will coordinate and simplify major weapons system funding, thereby speeding their development. By the same token, it will speed up development and procurement of all weapons system components.

(4) The new system will promote economy through better coordination and supervision and more efficient use of facilities and laboratories. Because the merged Bureaus will control some two-thirds of the Navy's total Shore Establishment, what is needed in the way of facilities will be on tap—when it is needed, and with no coordination problems between separate bureaus.

Not listed by the committee, but perhaps the most important function of the new bureau will be its role as a test case in possible complete overhaul of the 117-year-old Bureau system.

The argument against a possible Service Bureau was that each of the existing service Bureaus would simply be changed to departments in the larger organization and continue exactly what they had been doing before.

Perhaps because of the importance of the proposed merger, Navy has already started the wheels turning—in spite of the fact that the change will need Legislative approval to be final. In making its recommendation for the merger, the Committee on Organization suggested that "a small group should be established to plan the consolidation in detail." Named to head this group (which will number about ten) was Vice Admiral E. W. Clexton, Chief of Naval Material. Clexton's study will be handed to the Secretary of the Navy in April next year. Briefly, Clexton's job is to provide the groundwork by which the two Bureaus can be eventually merged, with the least possible strain on the Navy's mission.

The Major Problem

Clexton's major problem will be to set up the merger so that no time is lost on Navy's development programs. The problems to be surmounted by the new organization are summed up by Adm. Clexton: "We have lost, in past years, too many contacts with the fleet. We have to go through too damn many people. We have to survey what we have, and then get it in the right pile. Our biggest problem is that nothing can stop—reorganization or not, the Navy still has a job to do."

The Committee on Organization set five goals for the group to be headed by Adm. Clexton: (1) protecting the status of scientific, technical and other key personnel, to assure that their skills and experience will be carried into the new organization; (2) assuring that scientific and technical personnel engaged in specific projects of fields of specialization may continue such work without interruption; (3) easing the consolidation by physical location in contiguous office space; (4) giving consideration to any function which could better be performed by transfer to another bureau, as well as functions now assigned to other bureaus which would be more appropriately assigned to the new bureau, and (5) advising contractors as to their points of contact during the interim period preceding completion of the consolidation.

Adm. Clexton states "we have the push to get things done right." He explains that in many areas, the jobs done by Bureau of Aeronautics and Bureau of Ordnance are so similar that their combination will be no problem. Most important, he points out that procurement throughout the Navy is a standard operation, carried out under standard regulations. He adds that such offices as Finance, the Shore Establishments, Research and Development, and Administration are now being handled essentially the same in both of the Bureaus. In his words, "I will be arbiter in situations where problems arise."

Adm. Clexton expects that there will be "neither fewer nor more people" needed to get the job done as a result of the reorganization. But he points out that those working on the various projects will be able to give more careful attention to their work when the bureaus are merged. He says "most of the people working in these areas have more than they can handle now," and adds that the merger will insure that all of the work that needs to be done will be done right.

It is worth quoting the Committee on the problems which dictated their suggestion to change the Bureau system. Although they decided that "the functions performed by the Bureau of Ships could be reasonably set apart from those performed by the Bureau of Ordnance and Bureau of Aeronautics," they also concluded that "changes in Technology and weapons characteristics, particularly in the field of missiles, have tended to merge the areas of development under the cognizance of the Bureau of Aeronautics and the Bureau of Ordnance to such a degree that organizational changes with respect to these two bureaus appear to be desirable . . ."

"For example, the Bureau of Ordnance is responsible for warheads, explosives, fuses and rocket motors for all missiles. In a Bureau of Aeronautics missile, therefore, the responsibility is split . . . This creates difficult problems of management and supervision."

The Committee report cites similar problems in the areas of coordination, funding and research. All of these, the report says, derive from the division of responsibility—and corresponding splintered authority under the old system.

3 *Officer Specialization*

WITHOUT doubt, the most controversial rocket fired by the Franke Committee was its proposal to make part-time specialists out of line officers and establish a Navy Technical Corps, abolishing the present officer specialization system.

The impact was instantaneous and staggering. And no matter what Gates does about the proposal, debate on this idea is likely to continue for at least several months. So far, the attackers seem to be doing a better job of stating their case.

This does *not* mean, however, that the committee doesn't have a case. It's just that their reasons have been drowned under a barrage of criticism. Unfortunately, too, the negative reaction results too much from applying the recommendations to the present career pattern.

It doesn't seem to have occurred to the critics that the career pattern may change (for line officers), too. If it does, this makes the argument something different. For instance, one proposal being analyzed by R&D people: send a man to post graduate school, follow it with a tour at sea, then put him in charge of a project *for the life of the project*. Thus, his tour in the specialty would run possibly five to seven years, maybe longer.

This goes a long way toward undercutting the "part time doctor" argument noted below. The reasons behind the Franke proposals involve more than just a sharp jump in technology. The texture of the Navy itself is changing. The committee, essentially, is trying to reverse a trend which has been running like this:

Back in the dim, dusty days of Fulton a Navy officer was a man of all trades. Rise in technology gave birth to a more specialized operation (one obvious result—the bureau system). Special Duty Only designations were established later to point up the importance of the specialist. At the same time, specialists became that and nothing else. Eventually, they began losing practical contact with the fleet. Today, specialist background is an accepted need in the Navy. But specialization has been overdone.

Examples: in the "people" area, most of Navy's present-day top-flight specialists were once line officers, e.g. Rickover, Mumma, Bennett, Hayward. In the hardware area, most of the significant new ideas in submarine design have come from the fleet, not the engineers.

This argument is not a clear cut debate between line officers and specialists. There is divided opinion in both camps. Many communications people, for instance, think the idea is fine. Said one, "It gives us a definite career pattern, something we haven't had before. And it's not going to hurt us at all to get out to sea and air out a little."

On the other hand, a personnel officer commented, "We've always been extremely grateful that we've held on to these top level engineers, etc., in spite of the greater material rewards offered by industry. If this proposal goes through, they'll stream out of here as if we had the plague." An impressive number of specialty-type admirals back him up. (Even the ladies are upset. The "command at sea" requirement apparently means top level WAVE officers will have to take the line officer star off their sleeves.)

Nor can their opinions be discounted as nothing more than the squawks of a bunch of engineers. In most cases, they are far more than "doers" in the specialty. They are "administrators." They are like business managers with a little bit of company president, executive vice president and comptroller thrown in.

The Technology Problem

In these days of awesomely expanding technology in all fields, keeping a line officer conversant with the latest advances in his specialty will be hard enough. Developing all these other talents while at sea away from the specialty appears impossible. The key point: in the present 20-year career pattern a line officer can spend only one or two tours in a specialty. Yet, comparing technical knowledge of just ten years ago with that of today is like comparing a first grade primer with a college textbook. The big question: how will he keep up? The answer: change the career pattern.

But, said one EDO, "What they're doing is insuring mediocrity." Added another, "It's like organizing a football team and telling each man he's going to be quarterback for part of the season. We might win some ball games —but only if we get awfully lucky."

The Franke committee's recommendation contains these major points:

- That the restricted line designation (which includes, among others, engineering, aeronautical engineering, communications, hydrography, law, Naval intelligence, public information, photography) be eliminated and a Naval Technical Corps be established as a staff corps of the Navy with subdesignations by specialties.
- That officer requirements for the NTC be obtained, at the moment, by transfer from the present restricted line and Corps strength subsequently be maintained by transfer from the line of those qualified officers who request these assignments.
- That the officer billet structure be adjusted annually as necessary to permit line officers (who have acquired special qualifications through postgraduate education and appropriate tours of duty) to fill gradually many of the billets now filled by restricted line officers.
- That action be taken to insure line officers acquiring specialties, in addition to their general line qualifications, and line officers with specialty backup be recognized by selection boards and personnel administrators as being of greater value to their service.

Snorted one admiral, "This Naval Technical Corps is going to be a hard core all right—of the aged and infirm."

This hassle between line officer and specialists actually has been going on for years. Attitude toward the argument has been strictly a matter of viewpoint. Franke's committee, if it has done nothing else, has flushed the tussle out into the open.

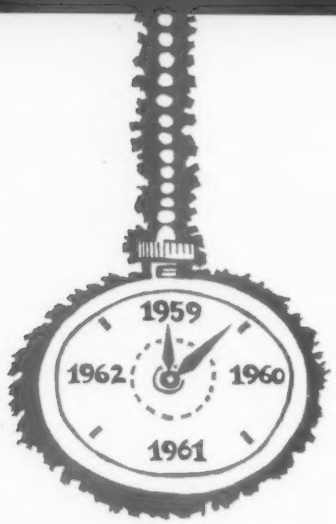
Particularly in recent years, the specialist has held an enviable position in the Navy. His technical experience coupled with an "average" promotion history has nearly always meant he could command a top salary with industry whenever he decided to leave the Navy. His family location and working environment is relatively stable. The line officer rarely enjoys such benefits unless he reaches a high flag rank level.

On the other hand, line officers have meticulously avoided moving into a specialty area because of its crippling effect on their chances for high promotion. Apparently, the Franke proposal would give line officers their cake and let them eat it, too.

But this idea toys dangerously with effectiveness and efficiency. Best analogy: most Congressmen are lawyers and many make money in the field after they leave Capitol Hill. But, because they have been away from it for so long, they invariably have to hire lawyers to do the actual practicing.

The answer, it seems, lies somewhere in the area of the team concept and educating top level officers to what it means. In the scientific field, it requires a variety of specialized skills to build a missile. Similarly, no one admiral (unless he is a truly superhuman being) can acquire the depth of knowledge in so many fields neces-

(continued on page 47)



TIME

. . . the resource we mis-manage most

Material wealth and technological talent are not assets until someone "digs them out of the ground." The U.S. has held World War III in check because we were the first to develop a strategic air arm—and the first to marry it to the most lethal bomb the world has known.

Yet, today we need twice as much time as the Soviets to move from concept to military hardware. This disparity, if continued long enough, will result in a grossly inferior U.S. defense.

This is what the Army, at least, proposes to do about it . . .

by Bill Borklund

JUST a little less than five months ago, Lt. Gen. Arthur G. Trudeau, chief of Army research and development organized a "Lead Time" symposium in the Pentagon. Attended by the cream of Army's top management, the symposium generated one of those rare reactions for symposia—a frank, openly lively debate on why the Army's research and development cycle is normally eight to ten years while Russia's lasts only five and a half.

Encouraged by the reaction to one of his favorite subjects, Trudeau set up an ad hoc committee, asked several Army offices represented at the symposium to participate. Only General Bruce Clarke's Continental Army Command responded. The tech services said, in essence, "No, thanks."

Trudeau's five-man committee* went ahead anyway, locked themselves in room 2418, Arlington Hall, Va., and, for 35 days, thought about nothing but lead time.

The result, termed "excellent" by retiring Army R&D Director, Dr. W. H. Martin, is a potentially tooth-rattling re-write of Army regulation 705-5 (which spells out standard Army R&D procedure). Cleared through Trudeau's office last month, the committee's report is now hunting approval in the Army Staff, USCONARC, and among the tech services. "We think this is a good start toward the answer," says Trudeau. "If someone doesn't like (one of the changes), he'd better have a very good reason."

Few men in the military, particularly in research and development, will argue with the contention that, today, saving time is a critical military need. Yet too little attention has been given to what uses up time—and what can be done about it. Most of the 70 salient points, factors, problem areas and suggestions for cutting lead time heard at the symposium were broad philosophical arguments. Said one colonel, "Everyone was a policy man. Nobody had definite ideas on the 'how to' details."

Trudeau wants this thorn in the side of progress removed. Asked what the most important project is in the Army today, his staff will almost invariably answer, "Lead Time." Coming from a scientist, declarations of war on lead time make for little more than erudite conversation. Coming from a blunt speaking, no nonsense fighter like Trudeau, the same declaration takes on new significance.

Recently, he said, "Money can buy many things, but it can never recover time lost through faulty administrative procedures, deferred decisions, lack of vision, timidity, complacency, misdirected or fruitless effort, or through past inadequate funding." And later, "I am convinced that there is more that can be done to resolve this

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* *Consisting of Lt. Col. W. H. Hard, chairman, Lt. Cols. Schofield and Quist, Major R. M. Pearce from Trudeau's office, Col. E. G. Shinkle (Hqs CONARC).*

lead time problem among those of us in responsible positions, and all our subordinates, than in perhaps any other single step that could be taken."

Trudeau's plan for cutting lead time amounts, essentially, to providing the machinery which will give a man the responsibility and funds to do his job, keep him under only enough management control to make sure he does not go too far afield. Today, he believes, there is too much control. "We have failed to de-centralize authority. We are over-reporting. Too much lost time is due to restrictions placed by top echelons on succeedingly lower echelons to protect themselves."

Added one colonel, "when you consider all the various stages an idea goes through, you begin to wonder how we manage to muddle through and produce anything."

In this fight to save time, the Army is dissecting every system, operation and philosophy which has any effect on R&D. No element of the cycle is sacrosanct. Rarely, in business or the military, has top management subjected its methods to such blanket scrutiny.

Not Alone

Trudeau, although possibly the most influential, is not the only crusader in the field. The Army Scientific Advisory Board reported to Secretary Brucker on the problem recently (and recommended such things as setting up an Army Assistant Secretary for Research and Engineering; boosting Trudeau's title to Deputy Chief of Staff and broadening his job to include engineering). Certain of the Tech Services, notably Signal and Ordnance, have concerted drives going to cut lead time. Problem here is the same one which adds to lead time itself: poor coordination.

A workable, time saving technique developed by one Service has a shaky, nebulous, non-authoritative way of drifting around to the others where pride of authorship and management hand-sitting delays its implementation even further. Then too, individual tech service efforts, however good, tend to look at the problem in terms of a particular Service's own environment. Army men are pretty well agreed that, with constant changes in station and fluctuation in work force, the R&D cycle procedure must be fairly uniform everywhere if it's to maintain a steady, uninterrupted pace. And a steady pace, they also agree, is one of the requirements for cutting lead time.

Why is cutting lead time so critical? There are several reasons. One is Soviet ability to move from concept to hardware operational in the field in an average of roughly five years. The U.S. Army takes eight to ten years. (There have been some outstanding exceptions in the Army record but they only cause critics to wonder why we can't do the same thing all the time.) To Trudeau, "This disparity, if continued long enough, will make us grossly inferior in military technology, result in our defensive development coming into being after the system it is designed to counter has already been replaced by a superior system."

Tied to this is the awesome advance in scientific technology in the last 15 years—an advance greater than the total of the last 100 years. Because of this technological revolution, military equipment today is often obsolescent when it becomes operational. In the next five years, the flood will be even greater. Unless decision-making begins to move as fast, knowledge of which technology the military can use and which is marginal will be little more than guesswork, groping in a darkness of unproven ideas. Worse, the scientific achievements will lie unused.

Where does lead time mount up? No one knows, except in terms of broad management philosophy. Even Trudeau admits "We don't know on which echelon this thing gets blocked or why." In only one area is there an obvious weakness: the apparent inability to shut off project development and go into production when a piece of equipment is "good enough" to do the job.

"We reach 95 per cent effectiveness rather quickly," says one Army R&D man. "It's the chewing away at that other 5% that takes the time. Russia quits when she reaches 95 and we're having a hard time right now finding any examples where that extra 5% is giving us any battlefield advantage."

(Why, for instance, is the Army still working on projects which today are only 5% improved over the original development in 1942? Why is R&D money still being spent on Honest John and Little John missiles which already fill their requirement? Why was $7 million poured into "polishing" the World War II Jeep so that now it is slightly better—but a great deal more expensive to buy and maintain?)

But beyond this one weakness, Army research people are pretty well convinced that cutting lead time in half is going to mean chewing away at a great many small things. (Signal Corps, for example, has discovered that a 50% cut in experimental and user test time reduces the overall R&D cycle only about 5%. Ordnance says, on some projects, they cut the total R&D cycle, actually, if they take more time in concept analysis stages.

Bridging the Gap

The Army knows, for instance, that there is a wide gap in knowledge and understanding, state of the art, between the military tactician who writes requirements on one hand and, on the other, the scientist who fills the order. The point: for both scientist and tactician to control their ends of the cycle better, yet move faster, is going to require that both learn a great deal more about the other's "state of the art" than they now know.

Most important: Army thinks the solution to long lead time is going to depend far more on the attitude of the people in the cycle than on any changes in the cycle itself. Said Army Chief Scientific Advisor, Dr. Weber, "Evidently you, and this includes me, are looking for some kind of set rules to run this thing by. I think that is fine, we should look for some rules, but I am convinced there are no hard and fast rules. Eventually, it will come down to the human equation of how each of us individually handles the thing." Added Dr. Martin: "The key factor in attaining the goal is that members of the team be motivated by a sense of urgency and an eagerness to cooperate with each other."

Long lead time is not, to be sure, entirely the Army's fault. The Army is not always allowed to decide for itself what it will develop. There is the Secretary of Defense and the Joint Chiefs of Staff, the Bureau of the Budget, and the Congress who all have a hand in.

In Brief:

1. Development time must be cut from an average of about eight years down to four.

2. Only to a limited degree is long lead time the result of legal requirements. Plodding management control is the big reason.

3. Too much of the military attacks lead time with lip service. Too few do anything about it.

4. Lead time cannot be cut down in large chunks. It must be whittled away by:

- *a. decentralizing authority*
- *b. more boldness*
- *c. faster decision making*
- *d. funding to fit the program, not programming to fit the budget*
- *e. above all else, an individual sense of urgency and a team eagerness to cooperate.*

Whether they should be overseeing as much as they do or not is another argument. The fact remains that for Army, or any other Service, to be successful in its efforts to cut lead time as a normal operation, the same sense of urgency must develop in these agencies as well.

During a recent visit to Russia, U.S. Steel officials were amazed at Soviet ability to get a job done in a hurry. When a Russian steel plant manager was asked how come, he replied, simply, "We get the directive and then we go ahead with it." His answer to where the money came from was just as direct, "The Director of Finance is given the instruction at the same time to find the means of financing it." Too often, in the present day U.S. scheme of doing things, the budget controls the military program instead of the other way around.

Who is at fault?

Nor is Army's problem solely a matter of dealing with its own governmental hierarchy. Industry, too, has frequently slowed down the cycle. Commented Army missileman Medaris recently, "Their paperwork procedures are frequently more complicated than ours and they often seem to want to make a career out of a single project."

Adds Dr. Martin, "We want and need more organizations which are proficient in both development and production and whose management has the concept and experience of handling as a prime contractor the overall job from the systems engineering point of view. We have some, but we want more companies who can help to plan the whole job, who can integrate development and production to get a satisfactory and economical product, and who are experienced in taking care of such loose ends as manuals, training aids, spare parts and maintenance tools and practices. This we have got to do or else we shall lose the race."

Because of this entwined complexity of organizations, procedures, philosophies, and people, the answer will probably be slow in coming—possibly too slow. To the men at lower levels who have already proven they have the ability and the knowledge but still are not given the authority this may prove particularly disheartening.

The best way to reach a quick solution may have come from hard hitting administrator Trudeau when he said, "I think maybe we should arrange with the Deputy Chief of Staff for Personnel to give a man any one of his first three choices of station if he could eliminate one echelon under him or simplify just one or two regulations—and get on with our work."

To Cut Lead Time

Trudeau's Ad hoc Committee wants:

Adoption of their rewrite of Army Regulation 705-5. Their major changes include:

1. A method for expediting selected development.
2. A method of selecting development to be expedited.
3. Elimination of Technical Committees.
4. Improved coordination between interested agencies.
5. Increased scope and content of Qualitative Materiel Requirements (including the chance to substitute them for Military Characteristics documents in some cases).
6. Firmer requirement of feasibility in military characteristics.
7. Control by specified command channels, responsibilities and reports.

Army Scientific Advisory Panel advises:

1. Chief of R&D should have sole responsibility for all research and development policy determinations.
2. Greater authority and responsibility should be delegated to the lower levels of the Army organization in the execution of the research and development activities.
3. Chief of R&D should have sole control of all funds, regardless of their source, essential for the conduct of R&D and the construction, evaluation and test of prototypes.
4. Chief of R&D should have authority to contract directly for R&D work and should establish an appropriate staff for such activities; should encourage the conduct of research within the technical services and promote free exchange of information.
5. An Asst. Secy. of the Army (Research and Engineering) should be created with appropriate authority and responsibility.
6. Chief of R&D should be titled Chief of Research and Engineering and be given the rank of Deputy Chief of Staff.
7. Concurrent contracting procedures of the Army should be reviewed, particularly with respect to the delays incurred in the initiation of the work and passing from R&D to production.
8. The Army Research Office should accent its efforts in anticipating the need for research and establish those projects which will provide the necessary information for the expeditious conduct of future development work.
9. For critical R&D programs, project management system should be more widely adopted; development programs should not last longer than four years; progressive reviews at Army General Staff level should be confined to Chief of R&D; Chief of R&D should determine number of test items required in the development program; and, during development work, should insure appropriate liaison between development and user agencies.

Dr. William H. Martin names these objectives:

1. Basic research and component development programs be adequate for a suitable reservoir of new knowledge, concepts and components.
2. A well-drawn project plan be provided for authorization of the development project.
3. The development cycle extend into the production of the first lot until an acceptable item has been produced and tested.
4. The responsibilities for development, preparation for production, initial production and the support material be placed on one contractor.
5. The Qualitative Military Characteristics, to the maximum extent, be objectives throughout the development cycle, with primary responsibility in the Army R&D agency for seeing that they are properly adjusted to the dictates of the available technology, economical quality production, reliability and timely availability.
6. Logistics and user agencies have close relations with the Army development agency and the contractor to insure that their interests are properly effective in the development of the design.
7. For each major project there be a project manager responsible for progress of the project and for proper participation of the logistics and user agencies.
8. The cycle from initiation of the development to operational availability of an acceptable item should be not more than four years.

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How Renegotiation Holds Down the Costs

In spite of loud and bitter criticism which has been directed against it, the Renegotiation Board is doing a vital job, and doing it well. This job is to be sure that Defense costs are held to a minimum at a time when even the minimum is higher each year . . .

by Fred Hamlin

WHEN an organization's yearly operating costs are barely over $3-million, and that organization sets up—in the same year—a gross revenue in excess of $112.7 million, it is reasonably safe to say that the organization is paying its own way.

And when that same organization is a government agency, the returns—in an age when $40-billion-plus is being spent for an intangible "national security"—are little short of spectacular. The government agency which can currently boast of this record (for fiscal 1958) is The Renegotiation Board. It is paradoxical that the aim of the Board is not to make money—ideally, government contractors would voluntarily refund their excessive profits without the Board's existing. The Board does not take money away from contractors—it merely makes sure that money is not taken away from the government.

While not a part of the Defense Department itself—the Renegotiation Board is independent in the same sense as National Labor Relations Board—the organization handles only those contracts which result from Defense spending. Agency contracts which are now Renegotiable under the Renegotiation Act are those let by Army, Navy, Air Force, Atomic Energy Commission, General Services Administration (when pertaining to Defense), National Aeronautics and Space Agency the Maritime Administration and the Federal Maritime Board. All in all, roughly half of the $40.8 billion Defense budget falls into areas subject to renegotiation.

As is too often the case, the violent criticism which has been directed at The Renegotiation Board in the past is not representative of the true state of affairs. But to understand this, it is necessary to take a look at the way in which the Board works.

Briefly, the process is this. At the end of their fiscal year, contractors are required to file with the board a statement of their renegotiable business—costs, revenue and profits on business conducted with the agencies that fall under the view of the Board. This filing is made only when aggregate receipts or accruals for the contractor are over $1-million for the fiscal year in question. In fiscal 1958, there were 21,200 of these initial filings, of which 16,700 were statements of non-applicability.

The remaining 4,400 statements were held at the Board for initial screening. In this process, the cases are separated, and those which show the company concerned to have lost money, or to have profits which are clearly reasonable are thrown out.

How the Job is Done

By this time, the Board has only those filings which appear to indicate excessive profits—of the original number, about 1,130. These filings are sent to the regional renegotiation boards, located in Detroit, Los Angeles, and New York. The actual Renegotiation proceedings do not begin until this time. Working with a backlog of roughly 2,000 cases (a total of about 3,000), the Regional boards determined in FY 1958 there were no excessive profits involved in some 1,323 of the cases studied. At the same time only 254 were determined to involve excessive earnings for the contractor.

To complete the Renegotiation process, the board attempts to reach an agreement with the contractor under consideration—that is, to get the contractor to pay the determined amount. If this is not possible—if the contractor feels the determination to be excessive—he may appeal the decision of the Board to the Tax Court of the United States.

In fiscal 1958, only 52 cases were not settled to the contractor's satisfaction. Excessive profits involved in the appealed disputes amounted to $51.7 million. A scant three airframe manufacturers accounted for 51.8% of this—$26.8 million. The remaining appellants—49 other companies—accounted for 48.2% of the total dollars appealed. A great part of the criticism levelled at the board is from these airframe builders—three companies out of 21,200 subject to Renegotiation. Says Board chairman Thomas Coggeshall, "I think it was quite clear . . . that the Aircraft Industry Association spearheaded the drive against renegotiation."

The job at hand is to save the government money—money that is in excess of the amount that should be paid on a given contract. The job is being done well, as the general lack of protest would indicate.

The history of the Renegotiation Board is almost as impressive as its record for fiscal 1958. Since its inception in its present form, under the Renegotiation Act of 1948, the Board has recovered for the government well over $723-million. And as the cost of Defense continues to increase in the future, it seems a strong likelihood that the Board will become of more and more worth to the government—and as a result, to the nation.

In the words of the Board's General Counsel, Howard W. Fensterstock,

"Renegotiation is not an exact science . . . It is a process by which the Government recaptures amounts which it has determined to be excessive profits realized on defense contracts or subcontracts." Fensterstock explains that the aim of renegotiation is not to re-check and renegotiate each and every contract that the government enters, even though the name would imply this.

Rather, he says, "it is a broad overall review of the contractor's operations for an entire fiscal year, based upon information submitted by the contractor itself and upon its aggregate receipts or accruals during its fiscal year from all of its renegotiable contracts and subcontracts . . . Loss or low-profit contracts offset high-profit contracts. Affiliated or related contractors may be considered together in a consolidated proceeding."

Although renegotiation is "entirely a judgment operation, with no formula or yardstick," the criteria on which the board judges the cases before it are set by statute, and are designed to give the contractor the fairest shake possible—without jeopardizing the legitimacy of the amount charged the government.

How Much is Too Much?

The six points on which contractor profits are studied are (1) efficiency of performance, (2) reasonableness of costs and profits, (3) net worth, (4) risk involved, (5) character of business, and (6) contribution to the defense effort.

On the first of these, says Fensterstock, "the Act goes as far as it is reasonable to emphasize the efficiency factor and provide incentive to the contractor to reduce its costs and increase productivity." The Act provides that "in determining excessive profits, favorable recognition must be given to the efficiency of the contractor or subcontractor, with particular regard to attainment of quantity and quality production, reduction of costs, and economy in the use of materials, facilities and manpower."

Under reasonableness of cost, the Act states that "volume or production, normal earnings, and comparison or war and peacetime products" be considered. The Board compares the contractor's cost with his costs of previous years, and with those costs filed by other similar contractors. The Board considers uncontrollable costs such as labor, and looks with a careful eye at such controllable costs as administrative expenses.

One of the more difficult considerations facing the Board is that of the net worth involved, or the amount of capital involved in a given contractor's business, and how much of it is from where. The problem is stated by Fensterstock: "Except in the most simple situations, rarely encountered, it is not easy to ascertain or estimate how much of a contractor's net worth has been devoted to the performance of its renegotiable, as distinguished from its non-renegotiable business . . . The determinations must permit the retention of profits sufficient to provide a proper incentive for the investment of equity capital and, where borrowed capital is involved, must reflect the additional risk to which the equity capital is subject."

In the touchy matter of contracts in which government owned equipment is used, Fensterstock states the board's policy to be that "when a large part of the capital employed is supplied by the Government or its customers, the contractor's contribution tends to become one of management only and the profit will be considered accordingly." The reasoning is that government-owned equipment can easily increase the returns on invested capital, without having the contractor increase the amount of capital he has involved.

Next considered by the Renegotiation Board is the extent of risk assumed including the risk incident to reasonable pricing policies. Risks include the chance that emergency production will saturate a potential post-emergency market; the chance that competitors will pick up a civilian market sacrificed for defense production; the amount of risk inherent in the type of contract that is signed. While a fixed-price contract, for instance, involves a high degree of contractor risk, work done in a government-owned, company-operated plant is practically negligible.

In the contract area, one of the most loudly voiced complaints is that the Board robs contractors of any incentive to economies in incentive-type contracts, under which government and contractor share economies resulting from a job well done. Board Chairman Coggeshall points out that it is very easy to over-estimate the amount of work and money that will be needed to complete a given project, paving the way for excessive profits when the contract is completed.

By definition, a renegotiable contract is one involving the defense effort. It is logical that the amount the firm under consideration contributes to that effort be considered in renegotiating. However, this factor is considered only when the contribution is exceptional. Cooperation with the government and with other contractors to provide technical assistance

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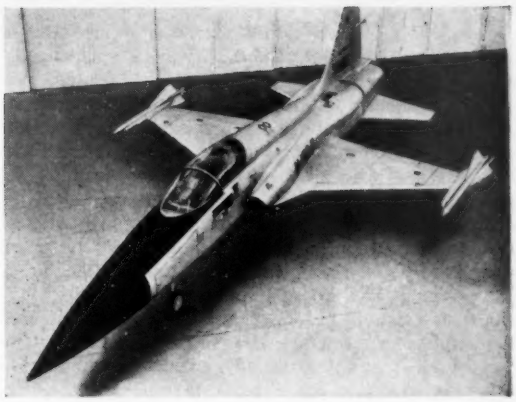

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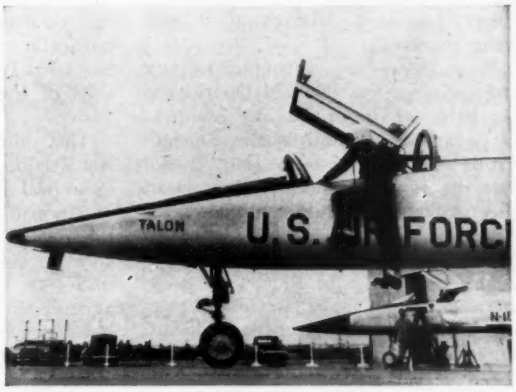

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is looked on in this light, as is experimental or developmental work with a high value.

The final consideration for the board is the character of business involved. In its simplest terms, this means that the contractor who takes raw materials and processes them through each stage to a final product rates more consideration than the contractor who simply assembles the necessary parts into an end product. The Board's subcontract policy is stated in its regulations: "Although a contractor who subcontracts work may not reasonably expect to be allowed as large a profit thereon as if it had done the work itself, subcontracting of the kind described in this subparagraph, especially to the extent to which subcontracts are placed with small business concerns, will be given favorable consideration in the renegotiation of the contractor.

Small Business Aided

"A contractor will be given favorable treatment when, by subcontracting, it utilizes in the defense effort facilities and services, particularly of small business concerns, which might otherwise have been overlooked or passed by; when it has demonstrated its efficiency and ingenuity in finding appropriate opportunities for subcontracting; when the amount of subcontracting so accomplished is substantial; and when the price negotiated with the subcontractor is reasonable in view of the character of the components produced."

These are the criteria. They are administered by the regional boards, under the direction of the statutory Board's headquarters, staffed with the offices of the General Counsel, Accounting and Review, the Secretary, the Economic Advisor, and those offices handling Administration and Assignments.

It is interesting to quote Deputy Defense Secretary Donald Quarles, in his letter of transmittal to Congress for proposed changes in the Renegotiation Act: "Experience has shown that the renegotiation authority is an effective method of preventing excessive profits. It has a salutary effect in contract pricing and has proved particularly effective in the subcontracting areas where maintenance and pricing controls are extremely difficult. Accordingly, it is recommended that the Renegotiation Act be extended for an additional two years and three months."

Quarles goes on to say, "the purpose of renegotiation is to eliminate excessive profits from defense contracts and subcontracts thereunder. In large scale procurement programs involving the purchase of many different types of specialized items, many of unprecedented, past production and cost experience are not always available for accurately forecasting the costs of such items. Today, particularly, we are witnessing rapid developments in the aircraft, missile and space fields. Pricing policies and contracting techniques of the procuring agencies cannot guarantee in all cases against excessive profits."

That the Renegotiation Board is a necessity in these days of rapid technological advance and ultra-complex weapons systems is unquestionable. But if the second of these points underlines the need, the first underlines the need for a change in the present way of doing business at the Board.

What is needed: a system that will allow for the rapidly changing ways in which the Defense Department has to do business, to meet the challenge of cold war weapons development. The means: What the above letter of transmittal transmitted—to Speaker of the House Sam Rayburn—were three changes to the present Renegotiation Act. While none of these will essentially change the concept or function of the Renegotiation process, they would serve to up-date the criteria by which the Board determines excess profits.

Without question, the most important measure is the extension of the Act, quoted above. This is the strongest endorsement that Defense Department could give to the principle of Renegotiation.

Second, the proposed amendments to the act would make specific allowance for work done under incentive-type contracts. The aim of this change would be "that the contractor be assured by an amendment . . . that due consideration will be given to the particular nature and objectives of the incentive type contract and to the results of the contractor's efforts thereunder."

The third change proposed in the Act would give the contractor the right to appeal his case to the U.S. Court of Appeals. Under the present setup, the final level of appeal is only one step beyond the Renegotiation Board itself—to the U.S. Tax Court. This amendment was passed by the House last year, but died in the Senate because of insufficient time for consideration. It would serve to put Renegotiation disputes in the same category as those arising from the Internal Revenue Code. It is worth noting that these proposed changes were worked out jointly between the Board itself and Defense Department.

The history of the Renegotiation Act, and the Board which that Act creates, dates back to the time of George Washington, who said of merchants profiteering on the Revolution "efficacious laws for checking the growth of these monstrous evils" were needed. It was shortly after the outrageous profiteering of World War I that the idea took root, and the results—from a Congressional viewpoint—were some 107 bills introduced to halt the profiteering in one way or another. A Supreme Court case in early 1942 ruled in favor of a World War I contractor, but suggested that laws be passed to prevent recurrence of similar situations.

Given the impetus of World War II, the results were quick and decisive—the first renegotiation act was passed in short order. From that time, the Board, or some similar organization has been in existence with only two and a half years of lost time.

The process has not gone without opposition. Again to quote General Counsel Howard Fensterstock, ". . . it survives, probably because some mechanism for the control of defense profits is considered by the President and the Congress to be necessary still, and renegotiation seems to be the best or shall I say the least undesirable, method thus far devised. Again and again, industry spokesmen and individual contractors, when asked to express their preference, have chosen renegotiation over the profit-limitation provisions of the Vinson-Trammell Act and other similar legislation, and even over price redetermination procedures under individual contracts."

Summing it Up

To say that the present Renegotiation Act is "least undesirable" is in no way to detract from the basic idea—that there must be some control over excessive profits. If it does any single thing, the Defense Department's proposed amendments to the Renegotiation Act strengthen the concept behind the original measure. That DOD wishes to change portions of the existing law to bring it up to date says only that the law is worth bringing up to date, and that it has a necessary place in the skyrocketing defense technologies and costs.

The generally close-mouthed attitude of the Board in the past would seem to stem from an old adage which runs "You can't argue with success." If the propaganda leans the other way, the dollar figures show that operating costs are less than one percent of revenues, and the results would seem to be the kind that yield a better, more stable defense for the nation.

How Workers Get the Word

The results of a thorough survey, this article gives an excellent rundown of the way in which internal channels of communication actually operate. In doing this, it opens the door to more effective communications, and the resulting improvements in managing the job at hand.

by Eugene Walton
Management Analyst for Communications
U.S. Naval Ordnance Test Station
China Lake, Calif.

"OF THE great variety of ways in which this Headquarters attempts to communicate with the working level employee, through which channels does he really 'get the word' or most of it?"

A top executive at the U.S. Naval Ordnance Test Station has raised this very question, and a complete survey had to be pulled before we could answer it. To get the answers, we interviewed a random sample of 100 of the Station's 4,000 civilian employees concerning how they would expect to first hear about important decisions made by Station Management, how they ranked various official channels of communications from Management and why some channels were more effective in reaching them than others. The survey was confined to Management communications which we defined as "having to do with the Management of the Station as a whole." We specifically excluded those communications peculiar to one's job or communications relative to how technical programs or procedures are carried out.

We asked "suppose Station Management made an important change in the way the Station would be run. Through what channels or means of communication would you expect to hear about this first?" The grapevine outdistanced all other channels but the supervisory system came in a close second. In all these employees said they expect to get the word first via

Grapevine	38%
Supervisor	27%
Official Memo	17%
Station Newspaper	7%
Station Directive System	4%
Bulletin Boards	4%
Miscellaneous	3%

For us, this showed the importance of the supervisory system as a communication channel and the surprising effectiveness of the various informal memoranda that circulate within the organization. Our official weekly newspaper, our directive system, and our bulletin boards did not occur to most employees as ways to get information quickly.

But employees value more than speed in a communications system—they want to be sure that the word will always reach them, that it will be complete and that it will have authority behind it. "Which of the following channels or means of communications are most effective in reaching you?" employees were asked. They ranked the six channels as follows:

Official Station Newspaper
Station Directive System
Bulletin Boards
All Hands Meetings
Employee-Management Council
Unofficial Community Newspaper

Besides finding out how employees are most likely to be reached, we learned a lot about why certain channels were more effective than others. About 75% of those employees who said the Station's official newspaper was the most effective way of communicating with them gave as their reason "because I'm sure of seeing the paper." 66% of those favoring the directives system did so "because I'll surely see the directives," and 50% of those who rated the bulletin boards first said "I always see and read the boards." The converse was also true—the most common reason explaining why certain channels were less effective was "because I don't see or read that regularly—it often misses me."

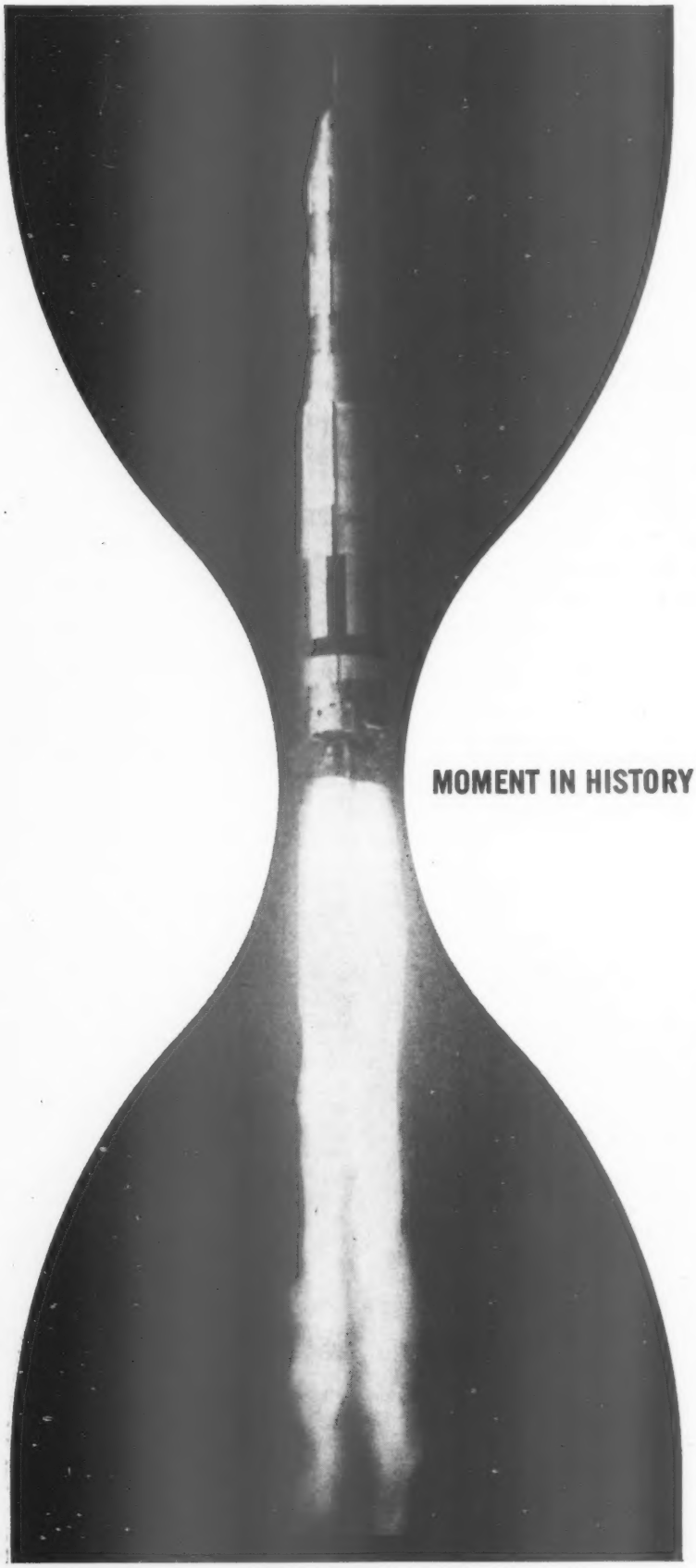
Assuming that the channel would reach them, employees most wanted assurances that the communication was "official, the real scoop, not just somebody's opinions or speculations." This was the main reason the directive system ranked only behind the official Station newspaper, and why the unofficial community newspaper was rated last.

The Station's directive system was highly favored because "this is what you 'go by,' it's right from top Management" and "all these (directives) have the authority of the Commander behind them." They said the unofficial community newspaper was poor because "it's not closely associated with the Station, therefore not well informed" or "I don't read it for (official) Station information—only for social news and such."

Behind these two, the most frequent reasons for effectiveness of one channel over another were completeness of the medium's report (directives, Station newspaper) and the ease with which information may be picked up (via All Hands Meetings, supervisors, bulletin boards.)

For example, employees said "In a Station Directive you get the whole story in detail, the way it was meant to be presented;" "a lot of people won't read, this way (via All Hands Meetings) is the easiest way to get information to them; the bulletin board is always available."

As our sample covered all classes of employees, we were able to tell which established channels were more successful with certain employee groups. The grapevine and supervisory system were successful with all grades of employees. However, with the other channels we checked (the Station's directive system, its official newspaper, bulletin boards and All Hands Meetings) we found a distinct and definite split between white- and blue-collar employees. The Station's directives and its official newspaper were considerably more effective in reaching white-collar



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employees, and the bulletin boards and All Hands Meetings were more successful with blue-collar employees.

This observed difference was not due to intrinsic differences between the two groups, but to the dissimilar ways the channels are used in the office as opposed to the shop. The Station's directives and official newspaper were more a part of the white collar employee's working environment, while the bulletin board and all hands meeting were more a part of the blue collar employee's. Most white collar employees said the directives were "official, what you go by," and that bulletin boards carried routine official notices and a lot of "unofficial stuff like cartoons, want ads and notices about dances." Fewer blue collar employees favored the directives ("they're for the bosses, workers don't read them,") and said their bulletin board was always well kept and read. "In our shop," one said, "we are made to understand that the bulletin boards are there to be read." Others said that shop bulletin boards carried notices about job vacancies and that this was a compelling reason to keep up with the board.

The Conclusions

We realize that some of these findings may be peculiar to our own organization (a research and development activity) but we feel the following conclusions apply to most large industrial plants:

1. The grapevine is the fastest communication medium among employees but it lacks vital characteristics that employees want in communications on their work and environment—authority and thoroughness. The next fastest channel, the supervisory system, has both of these characteristics and is the most effective channel of communication from Management to employees.

2. The most important requirement for an effective Management-to-employee communications channel is that it reach all employees in its target audience. This is an obvious point, but should you survey the intended audiences of your communication media you may be surprised how many you're *not* hitting!

3. The effectiveness or ineffectiveness of the various Management-to-employee channels of communication depends mainly on whether Management and its supervisors throw the weight of their authority behind messages transmitted. Bulletin boards are effective when used to transmit important and authoritative messages, ditto the other channels. The place to begin improving the effectiveness of a channel is to look at the uses Management makes of it.

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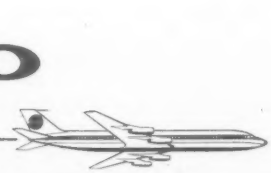

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Pentagon Profile

This Month:

Vice Admiral E. W. Clexton

Chief of Naval Material

IN PICKING the man to run their overall production-procurement-contracting policy operation, the Navy chose the logical person in Chief of Naval Material VAdm. E. W. Clexton, USN.

Admiral Clexton's experience covered years in design, development and test, industrial experience including directing the manufacture of the N3N seaplane and its engine, when the Navy was required to manufacture 10% of its aircraft and engines; and several years in the comptroller junction of justifying the Navy budget to Congress, and monitoring the use of its funds.

When he retires next year, it will have been 40 years since Edward William Clexton left his home in New York (he was born on Staten Island) to go to Annapolis. In those 40 years, he has systematically amassed a wealth of experience that few men—Navy or otherwise—could hope to match. And if the Navy has kept him busy during his fruitful career, it has not monopolized all of his time. With typical thoroughness, Adm. Clexton has raised five girls and a boy—Edward, Jr., who is in his third year at the Naval Academy, with plans to go into Naval Aviation when he graduates.

After leaving Annapolis, and two years aboard the USS *Mississippi,* Clexton was sent to Massachusetts Institute of Technology, where he earned a graduate degree in engineering. It is an excellent indication of the changes in the Navy since then to note that there were five other Navy students attending MIT with Clexton—this year's program saw 59 Navy men enrolled in the MIT graduate school. When he graduated from MIT, Clexton went hard to work in the Navy's young aviation program.

He spent four years working with dive bombers and torpedo launching aircraft. Next he worked with catapults and arresting gear, and shortly after that he gained his pilot's wings. As a pilot, he served on carriers including the *Ranger,* the *Lexington* and the *Yorktown.* Actually, Clexton says, his early flight time was spent on "more test than squadron" missions.

After World War II, he was put in charge of the entire Bureau of Aeronautics Shore Establishment, including all of the Naval Air Stations, the maintenance and repair shops, and the many other installations involved. Here, he says with a typical grin, "I was a great spender of money"—those funds needed to run the establishment for which he was responsible.

Just before taking over his present job, VAdm. Clexton was Deputy Comptroller of the Navy. He spent eight years in the Comptroller's shop, during which (1948-1956) he helped obtain from Congress and manage Navy spending of more than $100-billion. It was while he held this job (Oct. 1950) that he was promoted to Rear Admiral, with Vice Admiral's rank following in Feb. 1956.

It would be impossible for an operation as large as ONM to be run with no problems, and Adm. Clexton is typically frank in admitting that his office has its share. But, it is worth noting that almost every major problem mentioned in connection with ONM is basically beyond the scope of Adm. Clexton's authority. They are generally problems in explaining why ONM is doing what it does—and why that way is the best one for getting the job done.

Number one on the Headache List, according to Clexton, is "convincing Congress and the people on the outside that we must buy our equipment the way we do. . . . We'd love to do it all at the store around the corner, but it can't be done that way." He explains that the tremendous complexity in present Navy weapons systems dictates that business be carried out as it is, using "the goldfish bowl system of procurement" to insure that everything is above board and in the best national interests.

Another problem area which faces the Navy is explaining to Congress and the public the necessity and problems connected with surplus property disposal. Many people, Adm. Clexton points out, do not realize that Navy figures no depreciation on equipment that is disposed as surplus. A truck purchased in 1950 for $2000 is disposed of, on Navy's books, for $2000 in spite of its being virtually useless to the Navy.

In one specific instance—the battleship *California*—Clexton points out that the ship has been in the Navy longer than he has, with his nearly 40 years of service. To say that such a ship is obsolete is a drastic understatement, and yet on the surplus list, the *California* was written off at the same $20 million it cost when it was brand new. The ship was not—as the popular misconception would have it—something that should never have been bought. Nor are the Korean War trucks and tanks that represent a large percentage of the surplus lists. In all of these cases, the equipment is, in Clexton's words, "just worn out junk."

In this same line, one of the major procurement headaches under the eyes of Adm. Clexton is the "hump" of World War II ships which are—like their personnel counterpart—nearing the end of their Navy careers. Explains Clexton, "Most of our ships and most of our officers came into the Navy between 1940 and 1945—about half of the officers and 80% of the ships. We have replaced about 160 ships since 1951, but that's not enough. We would like to be able to buy enough to get production-run prices. We're in the same boat on airplanes. Our useable inventory of aircraft keeps coming down. We are not even replacing our attrition losses.

To counter the many problems that arise in a procurement program as large as the Navy's—$5 billion a year—ONM, under VAdm. Clexton's leadership, has "all kinds of simplification programs going on." Such programs as Value Engineering are instrumental in making sure that the Navy gets the most value for every dollar spent. "We are using the goldfish bowl method of procurement," says Clexton, "We're not beefing, but this takes extra administrative effort." This way of doing business may not be the simplest, but it is one which is necessary in government.

Commenting on the small business situation, Clexton says that "the little companies can really do a first class job. When a large business uses good subcontractors, the Navy benefits. Unfortunately, a lot of the good little outfits are absorbed by larger ones and lost to us as small businesses each year." Taking Polaris as an example, Clexton pointed out that they "are using some 300 small contractors. There wasn't a damn thing that anyone knew how to do from past experience." A well managed and successful subcontract structure is witnessed by the on-time development of the Polaris missile and the missile firing submarine.

It is the mark of a man who knows his job that he can keep relaxed and maintain a sense of humor: The ease of conversation shown by Vice Admiral Edward William Clexton, and the ready grin which stays constantly near the surface show him to be such a man.

The United States' first defense against coastal attac*ow c*

WITHOUT WARNING THERE IS NO DEFENSE. It is an acknowledged fact that the strength of our Air Defense Command and our Strategic Air Command are dependent upon Early Warning to alert them well before an aggressor's planes reach our coastlines. It is also acknowledged that the state of the art has passed our present Airborne Early Warning system.

The problem now is one of improving our AEW capability for warning against advanced weapons at a cost that will place as little drain as possible on our defense budget.

The United States Air Force and Lockheed have the solution in a fully integrated system whose capabilities are comparable to anything available now or in the immediate future; a system that affords dramatic economies and which is backed by more than 12 years of experience with actual AEW system operation. In addition, the facilities, man-power and know-how are available at Lockheed *now*.

Lockheed's proposed new AEW&C system is built around a turbo-prop aircraft of remarkable flexibility in terms of both speed and altitude. For AEW missions it can get "on-station" fast and then fly high and slow to make best use of the new advanced radar equipment over extended periods of time.

For continuous, 360° viewing, an exterior "radar-dome" delivers a *complete* picture of an area of thousands of square miles every ten seconds.

A second but very important characteristic of Lockheed's new AEW&C system is *economy*. Any Airborne Early Warning & Control system is an expensive proposition, not only in terms of initial purchase price but also in terms of

ow can it be improved, what will it cost?

operating costs. The economies afforded by the Lockheed system—if measured in terms of fuel economy *alone*—are dramatic.

Finally, Lockheed's know-how in AEW stems from actual development and operation of the present system over a twelve-year period—not from the drawing board alone! The result: a company knowledgeable in methods of increasing system capability, decreasing costs and maintaining a smooth, efficient operation. Lockheed has an experienced production team, ready to go—*now*.

The basic tool: Lockheed's CL-410 makes best use of the newest, most advanced radar, is long on endurance and economical to operate.

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Fort Ord post chapel project tests 3-way traction advantage of this rubber-tired scraper

Clearing land for Fort Ord's new post chapel, Tournapull heads toward fill with capacity load. Low, wide Fullpak bowl design plus rubber-tired speed boosts production on all phases of work-cycle. "C" can travel at 29.9 mph.

When land was cleared recently for the new post chapel at Fort Ord, Calif., a LeTourneau-Westinghouse Tournapull® proved its unusual ability — so important in any military application — to work fast despite soft material and difficult terrain.

Here's what happened . . .

Most of the 28,000 cu. yds. of root-laced sandy loam moved from the chapel site was on a central waste-pile. As work progressed, the pile became increasingly spongy — finally became impassable for ordinary dirtmoving equipment.

To the 210-hp C Tournapull with 18-yd. Fullpak® scraper used by Contractor Phil Calabrese . . . handling the project for the U.S. Army Corps of Engineers . . . these adverse conditions were no problem. The Fullpak kept working swiftly, steadily . . . averaged 3 min. round-trips for 1,000′ cycles. The C 'Pull* plus a crawler-L-W scraper team moved up to 700 yds. more dirt per day than two similar capacity competitive machines first used on the job.

How Tournapull did it . . .

There are 3 main reasons Tournapull scrapers can maintain traction and flotation where other earthmoving machines bog down:

1. *Wide, low-pressure tires* give a big ground-gripping contact area. This helps the scraper and prime-mover "float" on top of the surface, rather than dig itself in.

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3. *Electric kingpin power steer* makes it easy to keep at least one drive wheel on good footing. All operator has to do to change drive wheel direction and footing is to flick a dashboard steering switch. This activates big electric steer-motor geared to kingpin and pivots prime-mover from side-to-side — moving load ahead on each pivot and providing new ground-grip at each turn.

Other features for military use, too

Tournapull's "work-through-anything" feature is only one of many performance advantages that make it particularly adaptable to military service. Important too, are its weatherproof, instant-acting electric-control system and its self-powered roadability . . . that ends the need for special trailers and loading details for new assignments or convoy moves. Rugged construction and simple design assure little maintenance.

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Tournapull speeds back to cut. Note its rugged construction — including strong box-beams, steel reinforcing. Maintenance is easy; parts and trained servicemen are available across the globe. Contractor Calabrese reports excellent cooperation on this job from the service department of his L-W Distributor.

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MAY

Procurement Trends

AIR FORCE SAGE PROGRAM IS OVERTAKING MISSILE MASTER, Army's counterpart early warning system. Top NORADCOM officials are becoming dubious of the wisdom in going ahead with the 17 Missile Master centers planned. NORADCOM Commanding General Gen. Earle Partridge has told Congress that only 10 of the original Missile Masters should be completed. The Washington/Baltimore Missile Master is the only one working to date.

CAUSTIC COMMENT ON SMALL BUSINESS PROBLEMS comes in the form of a suggestion from one Navy Procurement Officer: "Maybe the simplest answer to the problem would be to attach a coupon to each contract that small businesses can tear off and turn in for a cash refund at Health, Education and Welfare. It would certainly save us some headaches."

PRESIDENT'S ADVISORY COMMITTEE ON MILITARY ASSISTANCE has said that $400-million more is needed in fiscal 1960 for military assistance. In explaining their case, the committee members mince no words: "Without this, we would have lost the cold war by this time. We simply wouldn't find freedom out there." Also needed: Recognition of military assistance as a truly long range program, more language training and better administrators.

MISSILES WILL MOVE A STEP CLOSER TO THE FRONT LINES with Army purchase of the small light-weight Shillelagh. Total program on the missile is expected to run in the neighborhood of $23-million, with operational deployment due by mid-1960. Prime contractor will be Aeronutronic Systems, Inc., with fiscal '59 funding set at about $3-million.

PRODUCTION DECISION ON NIKE-ZEUS, point out top Army officials, would be no more or less premature at this time than were the similar decisions on Thor and Jupiter IRBMs. Adding weight to the opinion is the excellent record of Zeus contractors—Bell, Douglas and Western Electric. Point of dispute: is the threat of missile attack great enough to justify the money involved in a Zeus decision? According to the Army, "yes."

RETIREMENT PLANS FOR SAC'S B-47 MEDIUM BOMBER are in the Air Force works. For each two B-47s, Air Force wants one B-58 or one B-52. Because of structural difficulties encountered with the B-47, retirement may come earlier than originally planned. One KC-135 will be built—under present planning —to service each of the B-58s to be bought by SAC.

ALL ICBM BASES WILL ULTIMATELY BE HARDENED, even though the first four will be "soft" for the time being in deference to time considerations. Five following bases will be hardened from the start, with the original four scheduled for hardening in the future.

AN EASY TIME FOR THE RENEGOTIATION BOARD can be expected this year on Capitol Hill. Kind words have already come from the House side for the Board, and Senate sources report that many of their complaints with the Board have been settled out of court. Also, DOD bill for extension of Renegotiation Act with minor changes was worked out in close cooperation with the Board itself.

AIR FORCE CANCELLATION OF F-105E SPLITS WITH NAVY philosophy on one- versus two-seat fighter/bombers. Navy recently has ordered production on the F4H-1 two-seater, while AF will have the proposed two-seat 105Es modified to single-place configuration.

HOUSE INVESTIGATORS OF weapons system procurement reportedly intend to plug what they call a "loophole" in procurement rules which bars prime contractors from examining bills of their own subcontractors. Object: lower arms development costs.

Procurement Trends

French Antitank Missiles To be Bought by Army

Department of the Army has placed a letter order with the French government to produce SS.10 and SS.11 antitank guided missiles, and a definitive contract is being negotiated.

Manufactured by Nord Aviation of Paris, the wire-controlled, solid propellent missiles can kill any tank currently known. The small weapons can be hand-carried, dropped by parachute, and can be fired by one soldier, from the ground, a vehicle, a helicopter or a plane.

The French missiles will replace the American built Dart wire guided missile (see August AFM, p. 26). The SS.11 is the larger of the two, and has roughly twice the range of the SS.10, with greater speed and effectiveness. First deliveries will be to Seventh Army troops in Europe.

Facilities Included In Weapons Funding

A definite trend to include facilities costs in with weapons system funding is shown in this year's $1.25 billion military construction bill before the Senate. The bill reflects the climbing dollar volume earmarked for missile sites.

More than $400 million—about 31%—is for direct support of U.S. Ballistic missile programs. About 20% is for expanding air defense systems, and about 17% to support R&D and missile defense.

In the same line, Army has announced plans to begin work on launching and support facilities for nine AF ICBM sites in 1959. These sites, for both Atlas and Titan missiles, will cost about $300 million.

In the House-passed bill before the Senate, there is provision for construction of new Atlas facilities, and support facilities for previously programmed sites. The bill also includes money for hardened Titan sites, and approval for construction of ICBM test facilities at Edwards AFB and Patrick AFB.

New Specification Due On Quality Controls

A uniform military specification covering quality control system requirements should be issued by Defense Department within the next few weeks. It will require establishment of a quality control system to meet standards established by contracts.

Briefly, the specification requires contractors to maintain an effective and economical quality control system based on the complexity of product design, quantity under procurement, interchangeability and reliability requirements and manufacturing techniques. It is supposed to provide for the prevention and ready detection of discrepancies and for timely and positive corrective action.

Under MIL-Q-9858, the system and procedures to be designed by the contractor will be monitored by the Government. The new rules do not apply to supplies manufactured to commercial specifications, but to research and development studies which do not require the delivery of hardware to the Government.

They do not apply to technical and engineering data, supplies or services for which comprehensive testing and inspection procedures are contained in the contract, or to supplies and services obtained from subcontractors where it is found that application of the rules would be impractical.

One answer to Navy's anti-submarine warfare problem would be improved seaplane to replace the 4-year-old P5M. Design competition specifications are in the works at BuAer, but lack money. Above model is Martin proposal offered last year. Because of the mission involved, a new plane would necessarily follow these lines fairly closely, aiming for speed, range and economy of operation.

Air Force Confirms F-105E Cancellation

Air Force has confirmed its cancellation of the Republic F-105E two-place fighter/bomber. First plane had been scheduled to roll out early this summer.

The cancellation will result in additional purchases of the F-105D single-seat aircraft. The 18 E's on order will be modified to D configuration. Air Force stated that subcontractors and suppliers would be unaffected by the change, and that propulsion and electronics equipment for the two planes would be about the same.

Army Ready to Go On M-60 Tank Work

Army will order the first 180 M-60 main battle tanks in the near future. The 52 ton diesel-powered tank will be built at the Army Ordnance Plant, Newark, Del.

Because of the small initial order, the M-60s will be produced as a continuation of M-48 production. The initial contract will go to the Chrysler Corp., but a decision has not been made on future production.

The M-60 will mount a 105-mm. gun which can defeat any armored vehicle known to exist. Army plans to cut the weight of the big tank to 51 tons in the future, enabling greater range and speed.

MATS Funding Set For Fiscal 1960

Military Air Transport Service, operating on an industrial fund basis, will spend $288.8 million in fiscal 1960 for airlift service. Of this, $234 million will be for the expenses of military aircraft in the airlift service. Just over $54 million will go for commercial augmentation.

Also in the airlift field, Air Force will buy 32 additional C-130Bs to

augment its airlift. Fourteen of the planes will be bought before the end of fiscal 1959, and 18 in 1960.

Flyaway cost of the first group of 14 will be about $38 million, Air Force estimates. Plans originally called for an end of C-130B buys in FY 1959, but Congress made an additional $140 million available for airlift in FY 59, with DOD authorizing spending of at least part of this.

Mahon Wants More Atlas Production

A sharp increase in production of Atlas ICBM's, to match Russia's output of similar weapons, over the next four years, is favored by Chrm. George Mahon (D-Tex.) of the House Defense Appropriations Committee.

Mahon was quoted in MISSILES AND ROCKETS magazine as saying that his subcommittee will seriously consider adding hundreds of millions of dollars to the Atlas procurement fund when it considers the defense appropriations bill for fiscal 1960.

He said the decision by the Administration not to maintain parity in this area with the Russians would weaken U.S. deterrent power and would tend to shake "our confidence in ourselves and the confidence of our allies in us."

Specification Adopted On Engineering Drawings

Procurement of engineering drawings and associated lists for the armed forces will be governed in the future under a recently released uniform specification, MIL-D-70327.

The specification is considered to be a first step in a long-range program to set up a basis for interchange of costly engineering data among military departments and their contractors. This step will bolster economy and efficiency in drafting rooms of industrial concerns by reducing the needs the contractors must meet.

The new specification will replace some 158 specifications formerly used to buy drawings. It will also require use of military standards in preparing drawings, invoke a standard which will define types of drawings that may be acquired, set up standardized order of precedence for design identification, and set up minimum requirements for data to be placed on lists of parts to be used with drawings.

The new specification is mandatory for use in drawings prepared by the military departments and their contractors in connection with all production contracts and in research and development contracts resulting in a design released for production.

First Incentive Type Contract Let by Navy

Navy has awarded its first cost-plus-incentive-fee type contract, to Grumman Aircraft Engineering Corp. The contract is for $101.7 million to develop and produce A2F-1 jet attack planes.

The contract will allow the contractor to increase or decrease his profits on the basis of the aircraft's actual over-all performance, and the contractor's control of costs.

Commenting on the contract, Assistant Secretary of the Navy Fred Bantz said "these incentive arrangements will encourage contractors to improve aircraft performance and to make early deliveries, while still controlling costs, because these contracts give contractors an opportunity to increase their profits . . . both Navy and Grumman stand to gain.

"If specific performance objectives are exceeded and costs are well controlled, the Navy will receive an advanced aircraft more quickly than in the past, and at a lower price. Grumman, in turn, will receive additional profit dollars for its concentrated engineering and management effort."

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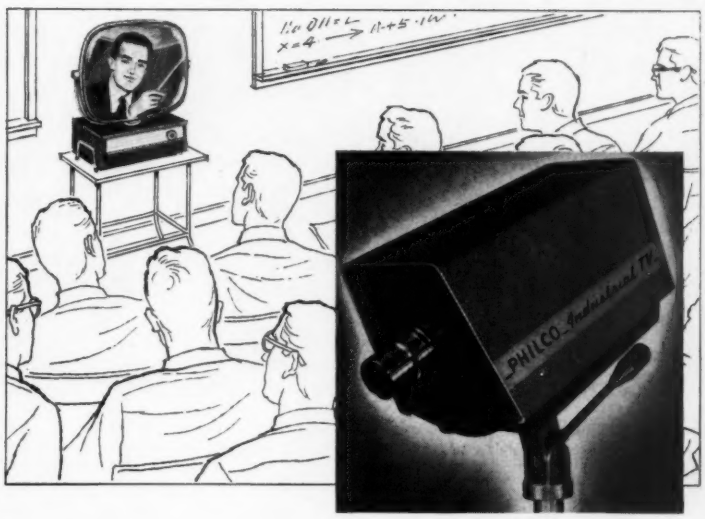

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MISSILE GUIDANCE SYSTEMS. Both ground guidance and terminal guidance systems are designed, developed and produced at Westinghouse. More advanced guidance systems are now being developed to replace those in production and in actual operation. The latest techniques in radar, infrared, and data processing and display are being applied to all phases of missile guidance by Westinghouse engineers with many years of experience in this field. ***Air Arm and Electronics Divisions***

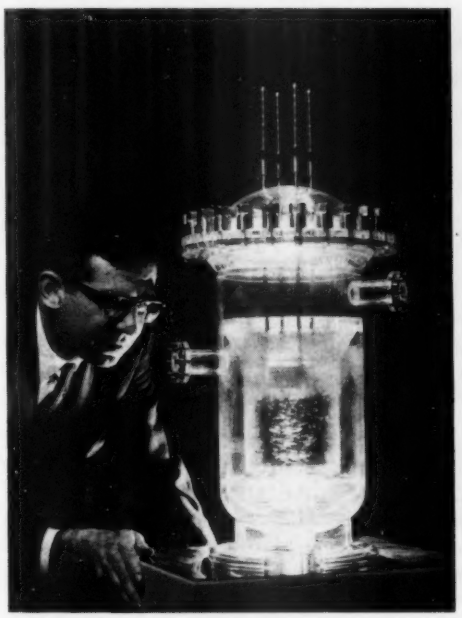
AIRBORNE ELECTRONIC SYSTEMS for weapons control, terrain avoidance, bombing and navigation, antisubmarine warfare, missile guidance, bomber defense and other applications are designed and manufactured by Westinghouse. Aero 13 Armament Control System, shown above, for the Navy's F4D Douglas Skyray fleet interceptor, is a recent ex-

PROPULSION. From the design of America's first turbojet engine in 1941—by 14 pioneering engineers at Westinghouse—to present-day engines for high-speed aircraft, Westinghouse has kept pace with the aviation industry's constant demand for increases in engine power and efficiency. Current applications include the use of new metals and advanced design features to attain maximum thrust-to-weight ratio, higher speed and higher altitude performance. Jet propulsion engineering reached a new high when a recently developed Westinghouse engine met design goals just 11½ months after these goals were set.

EXPERIENCED FIELD ENGINEERS are an important adjunct to Westinghouse engineering capabilities. Located at key locations abroad, in this country, and afloat—wherever Westinghouse equipment is in use—these field engineers supply the experience and information needed to fully utilize new equipment, help indoctrinate new personnel, and provide technical liaison with the manufacturing plants of the Defense Products Group.

AIRCRAFT ELECTRICAL SYSTEMS. From Jenny to jet, Westinghouse has been producing aircraft electrical equipment representing the day's most advanced state-of-the-art. Systems for today's finest aircraft—including the Boeing 707 jetliner, Convair B-58 bomber, and North American A3J-1 twin-jet fighter—are Westinghouse designed and developed. These systems include the entire a-c power system, control and protective devices, and feature the world's first brushless generator . . . result of pioneering experience dating back to the first airborne, strut-mounted a-c generator built by Westinghouse in 1917. ***Aircraft Equipment Department***

HUMAN ENGINEERING—mating man and the machine—is important in electronic equipment design. Continuing scientific study and research at Westinghouse facilitate advantageous application of this concept—from missile analysis to maintenance design—in developing better avionic systems. ***Air Arm Division***



NUCLEAR ENGINEERING experience is still exceedingly uncommon, but Westinghouse probably has more knowledge in this very specialized area than any other company in the world. Westinghouse has designed and developed more nuclear power reactors than anyone else. Its engineers have worked in almost every field related to atomic energy. Five different commercial reactor designs are now under active development.

UNDERWATER WEAPONS SYSTEMS. Westinghouse engineers designed the Navy's first all-electric torpedo in 1942. Since then, Westinghouse engineers have continued work on new and improved underwater systems, to include high resolution sonar and a high speed, long range anti-submarine torpedo. Technologies involved include hydrodynamics, acoustic systems, servo mechanisms, and guidance control. ***Ordnance Department***

UNDERWATER IRBM LAUNCHER for the submarine-based Polaris missile, shown here during early test launching with dummy missile, was designed and built by Westinghouse. Design features developed for this system appear applicable for use in other solid fueled missile launching systems.

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Research Rundown

BARGAIN BASEMENT FOR MILITARY RESEARCH NEEDS will exist in the National Aeronautics and Space Agency. NASA has stated that it will work for the services at no charge to them, as did their predecessor, NACA. With extended authority in space operations, NASA will be able to help out all services, while before it was Air Force-oriented. How they can do it: NASA is funded on a laboratory basis, rather than by projects, and can handle any odd work that comes along, without having to go to Congress for funds.

AN INCENTIVE PROGRAM TO SPEED RESEARCH IN THE ARMY has been broached by Army Research Chief Lt. Gen. Arthur G. Trudeau: "I think we ought to arrange with DCSPER to give a man any one of his first three choices of station if he could eliminate one echelon under him or simplify just one or two regulations, and get on with our work." Although the request for this hasn't been formally made, odds are it could find strong unofficial backing in the Pentagon.

ARMY TEST FLIGHT OF A FULL SCALE NIKE-ZEUS is scheduled for this summer. Vehicle will be unguided. Tests on the anti-missile-missile to date have moved forward swiftly, with no major trouble spots. Firings of the two stages of Zeus number in the "dozens," level of success has been unusually high.

ARMY NIKE-HERCULES MISSILES CAN'T BE FULLY TESTED with the drones and aircraft that are available as targets. It is simply too much missile, flying higher and faster than any aircraft the Army knows about. Using a Pogo booster device, Hercules has been successfully tested well over 100,000 ft. Sidelight on Hawk missile testing: Army is proudly showing movies of Hawk flying up F-80 tailpipes.

NUCLEAR PLANE DECISION IS FORTHCOMING, with the aim of getting airframe and propulsion contractors together. Choice will be between Convair and Lockheed on the airframe, with General Electric handling the propulsion work. In the meantime, furor on Capitol Hill and frustration in the Pentagon continue to surround the admittedly lagging program.

AIR-LAUNCHED BALLISTIC MISSILE PROGRAM DECISIONS should be released in the near future, with AF aiming for two different missiles—one for the B-52 and B-58, the other for the B-70. Range will probably be about 1000 miles on both, with a delay expected on the B-70 missile decision. Given this range requirement, The Martin Co., with its Bold Orion looks most likely to succeed. Decision will come after July 1, and will involve production quantities of the weapon.

NAVY'S DECISION TO DROP THE P6M SEAMASTER—although primarily dictated by funding considerations—had other reasoning behind it. One aspect of the big jet seaplane which scared Navy away was its below par rough water performance. This, coupled with poor cockpit visibility, would dictate more-than-minor changes in the plane before it would be operationally at its best.

EARLY WARNING AIRCRAFT AND CONTROL SYSTEMS planning in the Air Force is aiming for a spending program between $1- and $1.5-billion. Convair, Lockheed and Boeing will run feasibility studies on infrared detection of enemy missile firings. Computers for trajectory determination are also being looked over. Contractors' answers are due early this month, with Air Force decision to follow much later.

RUMORS OF IMPENDING STRUGGLE FOR POWER between Advanced Research Projects Agency and Defense Directorate for Research and Engineering appear unfounded, say spokesman in both offices. "There are no signs the fine working relationship between these two men (Johnson and York) has bogged down just because one (York) has changed jobs." More likely: Congress, on the strength of complaints by top service research officers (Schriever, Hayward), will begin asking pointed questions about ARPA's future status.

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Clexton Sees Limits On 'Special Projects'

Navy could support no more than four Polaris-type Special Projects Offices for accelerated development programs, says VAdm. E. W. Clexton, Chief of Naval Materiel. Even with this number, he said, all would have to be in separate fields.

Although the program has worked exceptionally well with the Polaris submarine/missile system, Clexton indicated that this sort of high-priority management is "slightly inefficient." He stated that one reason for the success of Polaris to date has stemmed from the high in-house technical capability of Navy's personnel.

Navy has, he continued, the skills necessary to support a Special Projects operation on one ship, one missile, one electronics-type system and one aircraft project. To extend this way of doing business beyond this would spread the Navy's in-house talents too thin, he concluded.

Missile Support Gear Developed by Army

Improved, simplified missile maintenance and support will be the result of Army's successful development of a new missile support vehicle and an air-supported missile maintenance shelter some 13 feet taller than the Pentagon.

The first of these—the Telefork multi-purpose vehicle—will reduce operating costs and simplify missile component handling at launch sites. If fully successful, the vehicle will replace several single-purpose vehicles. The Telefork acts as a tractor, a forklift and a crane.

Army has also announced successful development of an air-supported missile maintenance shelter. Developed by the Army Quartermaster Corps, in cooperation with Ordnance Corps, the Pentadome can be set up in about a day, after the anchorage system is in. Pentadome is believed to be the largest military air-supported structure ever built.

ASBCA Default Ruling Sets R&D Precedent

Armed Services Board of Contract Appeals has ruled that a contractor's failure to meet specifications in a research-type contract because requirements are beyond the state of the art is a default on the part of the contractor.

Ruling was against Aerosonic Instrument Corp., on a contract let by Air Force to design a portable tester. Aerosonic was unable to meet weight specifications set by the Air Force.

The opinion (ASBCA #4129) reads in part "Here we have a research and development contract to do that which had not been done before. By its very nature, it was a venture into the unknown, perhaps a challenge to do the impossible . . . In effect, we find that appellant had to break through or advance the state of the art to accomplish that result.

ASBCA ruled that the contractor signed the contract with the knowledge that the state of the art would have to be advanced to fulfill the contract. As a result, a calculated risk was assumed by the contractor. In failing to overcome the problems involved, the contractor failed to fulfill the contract, ASBCA ruled.

High Warhead Yield Insures Atlas, Titan

Air Force is far from eager to jump beyond Atlas and Titan ICBMs into Polaris and Minuteman second-generation missiles, and are making their go-slow case for this before Congress. The reason: the smaller Minuteman and Polaris missiles cannot carry more than about a quarter of the warhead yield that the larger missiles can.

If Air Force sells Congress on its point of view, it could mean an increase on the Atlas and Titan programs. While the Atlas can carry about a four megaton warhead—and double that with a second stage—the Minuteman is being planned to carry about one megaton.

This means that the second-generation weapons would have only limited usefulness, and the bigger ICBMs would be needed to take out hardened missile sites and similar toughened targets.

Hound Dog air-to-surface guided missile is shown under wing of B-52. Replacing the Rascal missile, Hound Dog will offer considerable advantages in range. The missile is considered an interim weapon until AF has air-launched ballistic missiles.

Nike-Zeus is On-Time, Needs Only Decisions

"The only lack of results that we know of in the Nike-Zeus program is in the decision-making area," according to Maj. Gen. W. W. Dick, Director of Special Weapons in the Office of the Chief of Army Research and Development.

In an exclusive interview with ARMED FORCES MANAGEMENT, Gen. Dick noted the progress to date on the Nike-Zeus program, and said that the first flight test with the complete missile—an unguided version—would take place "sometime this summer."

Commenting on the Air Force-sponsored Bomarc program, and speculation that the Boeing missile might have anti-missile capabilities, he said "as far as we know, the Bomarc B-type missile has no anti-missile capabilities." He further said that because the Bomarc is an air-breathing missile, any anti-missile program based on it would have to be "entirely new, starting from scratch."

The two missiles, he said, "are not in the same league." To say that the Bomarc has a missile-killing potential is like saying the same "about the Colt .45—it may be true, but not without a complete change in the concept and hardware in the system."

Dick said an anti-missile program

needs "radar better than any we have now," but he indicated that 1/6 scale models have been tested, and that "dozens of tests" have been run with both the first and second stages of Zeus. The first stage, he said, is the biggest rocket motor that has been fired to date, with the exception of the million-pound-thrust Rocketdyne engine fired last month.

Commenting on the delayed decision to go into production with Zeus, Dick said "the threat requires some measure of risk." If put on a crash program, R&D officials estimated that the Zeus could be deployed in the field in three to four years. Dick said the risk would be no greater than was involved in early production with Thor and Jupiter IRBMs.

Dick pointed to the past successes of the industry team which is working on Zeus—Western Electric, Bell, and Douglas. He also said that the Army had received "twice the capability" originally planned with both Ajax and Hercules.

In a note of warning, Dick said that there "could still be a gap" between missile offense and defense, even if Zeus were given a green light today. In the missile itself, he said that "to overcome the inherent Mach 30 speeds with ballistic missiles" Army wants a mixture of speed and maneuverability in Zeus.

He also said Army and Defense Department have "many long range schemes" besides the Argus theory for stopping incoming missiles. The Argus theory—recently disproved—held that a band of radiation above the atmosphere would neutralize or burn up incoming nuclear warheads.

First Polaris Subs Due Late This Year

The first four Polaris missile-carrying atomic submarines will be launched by the end of this year, Navy has announced. First of these, the USS *George Washington* will be launched June 9, with the second—USS *Patrick Henry*—set for October launching.

Missiles for the submarines will be available for operational deployment sometime in 1960. Original plans for the submarine/missile system have been telescoped from the first estimate of 1964, set when Army was in control of the development project.

Navy has also announced that Allegany Ballistics Laboratory will receive a 25,000,000 volt betatron for X-ray examination of the solid propellant Polaris rocket motors. The betatron was built by Allis-Chalmers Mfg. Co., and will be the first of its kind to be used in missile work.

Industry Developments

Lockheed Proposes Beefed-up Hercules

Lockheed Aircraft Corp. has proposed a super-Hercules as the answer in the search for a cargo plane by both the military and civilian cargo carriers. The project has been discussed by Lt. Gen. William Tunner, MATS Commander, and Sen. Mike Monroney's Aviation committee has been briefed on the plane.

To be powered by Allison T61 engines, the super-carrier could be built using about 65% of existing C-130 tools. The plane could be ready by 1961 with adequate funding.

The plane could carry 152 airborne troops or 116 paratroopers. As a cargo carrier, it could haul anything but the ICBMs now carried by C-133s. The super-Hercules could carry 25 tons non-stop over the Atlantic, and loads of 16 tons could be carried 5500 statute miles with pylon gas tanks.

The plane could take off from a 5100-ft. runway with a gross weight of over 200,000 lbs. It would cruise at 360-370 mph at altitudes up to 44,000 ft.

Titan Guidance System From AC Spark Plug

AC Spark Plug's inertial guidance system will be used on Martin's Titan ICBM. It will be essentially the same guidance system that has been used successfully with the Thor Intermediate Range Ballistic Missile.

Considerable speculation has centered on the choice of this system for the Titan, involving such companies as Bell Telephone, General Electric, and American Bosch Arma. The Bosch Arma system developed ahead of schedule, and was transferred to the Atlas program.

YAO-1 Prototype Flown by Grumman

First production prototype of Army's new YAO-1 propjet observation aircraft has been flown by its builder, Grumman Aircraft Engineering Corp.

The YAO-1 Mohawk will be the first propjet plane in Army's inventory, and will be—with its 9000 lb. empty weight—one of the largest planes to be in Army's Aviation program. The plane has a stall speed of less than 60-mph, and an excellent Short Take Off and Landing capability.

There are nine of the planes under production, all of them scheduled for evaluation by Navy's Bureau of Aeronautics, which is contract administrator for the Army on the Mohawk program.

Small TV Camera Developed by Dage

Dage Television Division, Thompson-Ramo-Wooldridge, Inc. has announced production of a portable, battery-powered four-lb. television camera and 12-lb. TV transmitter, capable of sending television pictures half a mile.

The "Tele-Tran" is designed to give military forces an easily portable, completely automatic TV system that can transmit picture information from front lines or remote locations without cumbersome cables or other equipment.

The transistorized camera is about the size of a book, and the transmitter is about 8-in. square by 2½-in. deep. With receiving equipment, the entire system cost about $12,500.

Advanced Product Group Formed at Hamilton Std.

Hamilton Standard division of United Aircraft Corp. has announced establishment of an Advanced Product Planning Group, to discover product possibilities in or out of the aircraft field.

The new group "will seek specific products in the growing missile market, and in other markets, to which our skills and facilities as propeller and jet equipment manufacturers can be most suitably applied."

The new group has been at work for several months working in missile and other fields under direction of Walter C. Shaw.

Bendix Tracker System Scores Jets, Missiles

Bendix Aviation Corp. has developed a mobile, multiple tracking system for the Air Force. Using electronic computers, the system can tract three airborne vehicles at once, scoring the performance of all three.

In a sample problem, trajectories and relative positions of target, interceptor jet and missile are all shown from telemetered signals to a ground plotting board. The system can also be used to simulate missions such as the one described.

First installation of the system will be at Eglin AFB, Fla., where it will be used in training operations.

In My Opinion

ASW Bouquets

. . . I think it (Can We Stop the Silent Assassin?, March ARMED FORCES MANAGEMENT) is an excellent article which puts emphasis on the salient facts of the ASW problem.

RAdm. J. S. Thach
Commander
Carrier Division Sixteen

. . . Bill Borklund's article "Can We Stop the Silent Assassin?" which appeared in your March 1959 issue of ARMED FORCES MANAGEMENT . . . is an excellent article and should suffice to add further stimuli to the national ASW effort. I can only suggest that articles describing approaches to the problem by other corporations might be of particular value.

Capt. E. A. Ruckner
Assistant Chief for Research
Bureau of Ordnance

Liked Logistics Research

Thank you very much for . . . "New Tools Provide Better Logistics," appearing in ARMED FORCES MANAGEMENT recently . . .

What can I say? Nate works for me and, or course, has done his usually fine work. I am pleased that this publication has provided a means for giving information of this kind broad circulation throughout the Armed Forces.

Glenn V. Gibson
Director, Planning and Requirements
Policy OASD (S&L)

More Lonely Men

. . . about Lt. Col. Charles F. Austin. What a gem his article is. Your publication must be doing something or other to bring forth that type of refreshingly honest and philosophically sound expression. . . . I've been recharged for a couple of weeks at least.

Len Palmer

. . . Here at Bolling AFB we are sharpening that "most neglected and improperly used management tool"—the Military Suggestion Program—and would like to use copies of this article ("The Loneliest Man in the Military, March AFM) to help with the job.

Colonel Austin merits my praise for calling the shots on the weaknesses of the program and for his six point plaform for improvement. With the help of his article we hope to have many new ideas—and a lot more lonely men . . .

Col. Edwin B. Miller
Commander
1100th Air Base Wing
Bolling AFB

Theory vs. Practice

. . . It seems quite perplexing to read articles, such as appear in your publication and elsewhere, devoted to the principle of efficiency and economy in all things. Maybe the boys top-side really believe all that business. At the working level, however, I cannot see how any "study" in Washington is going to save much when it still takes three clerks to perform 10 hours work which an objective analysis might well reveal need not be done at all. Then too, your January issue was devoted in the main to logistics and supply support. Most of the articles made mention somewhere of the "best support for each dollar" idea. Not one mentioned things like the following:

Tonight, a typical working evening, we invoiced for shipment:

$ 96.,	Nuts	to Charleston, S.C.
173.,	Shaft	to Boston, Mass.
.70,	Item	to Pensacola, Fla.
21.	Gear	to Boston, Mass.
58.	Spare	to Norfolk, Va.
3.	Item	to Boston, Mass.
1.	Contact	to Portsmouth, N.H.
20.	Bearings	to Charleston, S.C.
5.50	Shims	to Norfolk, Va.

All of that material will have to be packed for cross-country shipment. I don't know how they will be shipped, but even if they go by mule pack, it will cost money. In some cases, the shipping costs may well exceed the value of the item. These are just samples you understand, on a typical night.

Now it is very hard for me to believe that nowhere in the Navy supply system is there a $1.00 contact closer to Pensacola, Florida than San Francisco. Nor can I understand why we should be directed to ship a $3.50 item clear across some 3,000 miles to Boston. Is it possible that such item was not available in Philadelphia?

So you see how it is with me. I read the articles, and then I look around me and it is very difficult to find any connection between what is being said and what is being done. So far, with hollering, pointing and pleading, I have been able to get exactly no results along such lines as we have discussed. You have offered the first glimmer of encouragement.

My latest efforts around here was just recently blessed with the following comments, which served to close the issue. "What you say may be true. (What I said was that we were all ready to pour half a million dollars down the drain in our EDP set-up to no avail). However, we must assume that everything is going well, as reported, until proven otherwise." What was not said, of course, is that by that time it will be too late to do anything about it. The basis for that comment was the fact that in six months, estimated completion dates for the three phases to be switched to EDP were increased by some 102 man months. At about $550 per man month, does management need any more of an indication that perhaps someone needs some "direction?" And what is the real difference between that kind of estimating and just out and out guessing? The first estimates, mind you were made after two man *years* of study.

Paul E. Morphy
San Francisco, Calif.

Valuable Info Source

We have found the articles in this magazine to be a valuable source of information pertaining to the latest developments and problems confronting the armed services. We are interested in using these articles as reading and study assignments for students of our advanced officer classes . . .

Maj. A. C. Erbes
Assistant Secretary
U.S. Army Engineer School
Ft. Belvoir, Va.

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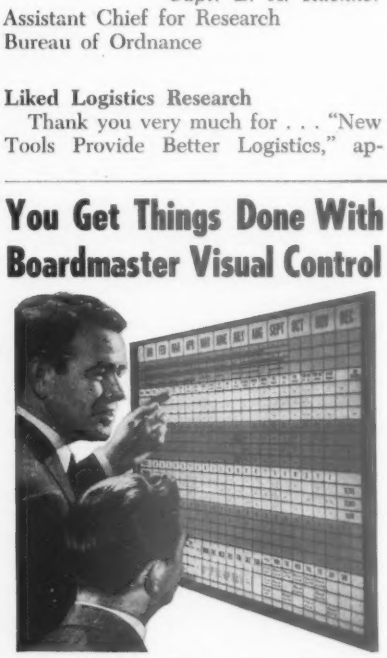

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Newsletter

Armed Forces Management Association

Washington 25, D.C. Phone: OTis 4-7193

National President: Rawlings S. Poole **Executive Director: VAdm. Harry E. Sears, USN, ret.**

Conference Program Announced

Armed Forces Management Association has announced the following program for the 1959 National Conference. The theme of the Conference will be "The Role of Management in the Collapse of Time."

26 May, Afternoon

Business Session. Meeting for National Board of Directors, National Officers and Chapter Presidents.
Evening—Reception. Army-Navy Club, 17th and Eye Sts., for Distinguished Guests, courtesy AFM Magazine.

27 May, Morning

Exhibits. National Conference exhibits open to the public in Pentagon Concourse and Main Navy Lobby.

General Sessions, Opening Ceremony

Call to Order. Rawlings S. Poole, National President, AFMA.

Invocation. Maj. Gen. Frank A. Tobey, Chief of Army Chaplains.

Introduction of National Officers, AFMA. Maj. Gen. Robert W. Ward, Executive Vice President, AFMA.

Introduction of the Secretary of Defense, Hon. Murray Snyder, Asst. Sec'y of Defense, Public Affairs.

"Welcome to the Pentagon." The Hon. Neil H. McElroy.

"Value of DOD-AFMA Cooperation." Hon. Perkins McGuire, Asst. Sec'y of Defense, S&L.

"The Collapse of Time." J. Lewis Powell, OSD Conference Keynoter.

"The Collapse of Time in Implementing Plans for Contingency." Col. Howard H. Cloud, Jr.

Chapter Programs Session

Moderator: Brig. Gen. Thomas Gent, Nat'l Vice President, AFMA.

Mohawk (N.Y.) Chapter: Panel—Reuben O. Schlegelmilch, Edmund J. Perret, Ruth A. Hoy, Mrs. John B. MacHarg, Charles W. King (moderator).

Afternoon—Educational Programs Session

Moderator: Howard K. Hyde, Nat'l Vice President, AFMA.

Speaker: John W. Macy, Exec. Vice Pres., Wesleyan University. Special Presentations by Army, Navy, Air Force.
Evening

Reception: Bolling AFB Officers Club.

National Awards Banquet: Toastmaster, VAdm. Harry Sears, USN, (ret.)

28 May, Morning

Industry Programs Session

Moderator: VAdm E. W. Clexton, Chief of Naval Material, Nat'l Vice President, AFMA.

Introduction of theme: "The Responsibility of Government and Industry in the Reduction of Lead Time." Thomas A. Callaghan, Chrm., AFMA Industry Advisory Council; Eastern Representative, Aeronutronic Systems, Inc., Ford Motor Co.

Guest Speakers:

Hon. Leverett B. Saltonstall, Ranking minority member of the Senate Armed Services Committee: "The Problem of Lead Time from Congress' Point of View."

John M. Sprague, Deputy Assistant Sec'y of Defense (Comptroller): "The Role of the Budget Process in Lead Time."

Dr. William H. Martin, Director Research and Development, Department of the Army: "The Reduction of Lead Time in the Development and Production Cycle."

August C. Esenwein, Executive Vice President, Convair Division, General Dynamics Corp.: "The Principle of Lead Time in Government/Industry Inter-Relationships."

John Corson, Director, McKinsey and Co., Inc.: "Partners in the Space Age—Government and Business."

Panel discussion on reduction of weapons systems lead time follows.

Afternoon—Departmental Programs Session

Moderator: Edmund D. Dwyer, National Vice President, AFMA.

Special Presentations:

Department of the Army. Maj. Gen. Robert W. Ward: "Success in Space." Panel—Col. John G. Zierdt, Col. Charles G. Patterson, Lt. Col. Robert H. Offley, Col. Eugene J. Sweeney.

Department of the Navy. Brig. Gen. W. J. Van Ryzin (USMC): "The Importance of Time in a Military Operation." (From the weapons consumer standpoint).

RAdm. W. F. Raborn: "The Importance of Time in Developing a Weapons System." (From the weapons producer standpoint.)

Department of the Air Force: Maj. Gen. Harold R. Maddux: "The Modernization of the USAF Manpower Management Program."

Conference Co-sponsors and Exhibitors:

Addressograph-Multigraph Corp.; Aerojet General; Aeronutronic Systems, Inc.; Diebold, Inc.; Gallant, Inc.; The Gray Manufacturing Co.; International Business Machines Corp.; The National Cash Register Co.; Nuclear Products—Erco Division of ACF Industries; Radio Corp. of America; Remington Rand; The Soundscriber Sales Corp.; Thomas A. Edison Industries.

NOTE: Conference sessions on 27-28 May are open to the public. Admission charge is $2 for AFMA members, $3 for nonmembers. If application is received prior to 15 May at AFMA national headquarters, charge is $1 and $2 respectively.

Banquet, open to both members and nonmembers, will cost $5.50 including reception, dinner and entertainment. Conference programs and registration forms were forwarded to all chapters and corporate members. Supplies of these will also be available in the Pentagon and other DOD information booths.

Every Member Get a Member—or Several

(For further information on individual or corporate membership in the Association, circle number 200 on the business reply card on p. 49 or write AFMA direct.)

New Research Chief Appointed by Army

Richard S. Morse has been named Direcor of Army Research, replacing Dr. William H. Martin on June 1. Martin has also served as Deputy Assistant Secretary of Defense for Applications Engineering.

Morse will leave his present job as president of National Research Corporation to take over the new duties. For the past year he has served as chairman of Army's Scientific Advisory Committee, and as a member of the Defense Science Board.

Project Auto-Mate Announced by AF

A study project to develop systems and procedures for automating Air Force personnel data is underway. Called Project Auto-Mate, the study will soon be distributed to the Air Force Commands for comments and approval.

Air Force officials estimate that the new system, when completed, will reduce the present 10,000 "personnel factors" by about 85%, in addition to slashing the number of forms for personnel records by about 75%. To do this, Air Force will aim for a system exploiting modern technology and methodology, especially in communications and automation.

Air Force expects that Auto-Mate will result in a thorough overhaul of present personnel system, rather than piecemeal attempts to correct parts.

Logistics Seminars Planned by Army

The first of a series of five Army Aviation Logistics Seminars was concluded last week at the Army Transportation Supply and Maintenance Command in St. Louis, Mo. Attending the three-day seminar were some 25 officers and civilians from agencies using Army Aviation Equipment, or working with its supply and maintenance support.

The other four seminars are tentatively scheduled for every other month for the rest of the year. The future seminars will cover technical assistance, procurement, supply maintenance, policy development, stock control and management, overhaul, automation, accounting and funding.

Aviation Supply Office Gets New Commander

Rear Admiral Joseph M. Lyle has been named to replace RAdm. John W. Crumpacker as Commanding Officer of the Navy's Aviation Supply Office in Philadelphia. The change follows Crumpacker's move to the staff of the Chief of Naval Operations.

Lyle will take over his new duties early in June, with Capt. Jack J. Appleby named to serve as interim commander. At the present time Lyle is serving on the staff of Commander, Naval Air Force, Atlantic Fleet.

In another flag officer change, RAdm. Edward F. Metzger has been appointed Assistant Chief for Supply Management in Navy's Bureau of Supplies and Accounts. Metzger was formerly Assistant Chief for Transportation.

Army Missile Units To Be Activated

First Army missile units will be activated in the next few months to handle the Hawk surface-to-air and Lacrosse surface-to-surface missiles, Army has announced.

First Hawk unit will be the 5th Missile Bn., 57th Artillery. The unit will be activated at Fort Bliss, Tex., and will support U.S. Army Air Defense School in training additional Hawk crews. The unit will number 300 officers and men.

The first two Lacrosse units—5th Missile Bn., 41st Artillery, and 5th Missile Bn., 42nd Artillery—will be activated at Ft. Sill, Okla. before June 25. Each battalion will include 170 officers and men.

Top Level Changes Announced by Army

Maj. Gen. Russell L. Vittrup will take over as Chief of Army's Legislative Liaison operation this August, Secretary of the Army Wilbur Brucker has announced. He will succeed Maj. Gen. John H. Michaelis, who will be transferred to U.S. Army, Alaska.

In another top-level Army change, Maj. Gen. Edward H. McDaniel will become Inspector General of the Army, succeeding Maj. Gen. Albert Pierson, who will retire on July 31.

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NO AGE LIMIT ON CAPITALISM

A friend of ours who is inclined to be forgetful gives presents to his two young sons on his own birthday. Well, why not? He figures his own birthday is the one date least likely to slip his memory.

The reason for his strong determination to remember is that the birthday presents his boys receive are shares of common stocks. Not as sentimental as ice cream and cake, maybe, but plenty smart, we'd say.

As it happens, our friend Joe is a successful attorney and he would naturally recommend law as a career for his sons. But he wants Joe, Jr., 10, and Hal, 7, to be absolutely free to choose another field if they are so inclined. The nest egg he is building for them will help provide that freedom of choice.

Being a late-in-life investor himself, Joe would like his boys to acquire—while they are still young—an understanding and appreciation of the advantages of participating in the country's future progress through shareownership. What's more, the securities gifts may help build a reserve his two sons can draw on when they grow older.

When Joe first told us about his plan, we thought it sounded good. We also thought it was unique. But after checking some brokerage firms, we find that, far from being alone, he typifies a growing number of men providing for the future of their children through periodic gifts of stock at Christmas, graduation and on birthdays.

The idea of giving stocks to youngsters isn't anything new, of course. After all, it has been the practice among the well-to-do parents to protect their children through trust funds of stocks and bonds for a long time. But what is fairly new is the plan's popularity among men in the average-income brackets.

One reason for this is a new piece of legislation. Most states now officially smile on an idea that used to be so complicated and/or costly that it just wasn't worth the bother.

In the past four years, 43 states, plus the District of Columbia, Hawaii and Alaska, have passed laws making stock gifts to minors virtually as simple as opening a savings account. And there is reason to hope that the remaining states—Illinois, Iowa, Maine, Oregon and Washington—will deal favorably with what is called the Uniform Gifts to Minors Act when their legislatures meet again.

How do the new laws work?

Briefly, to make a gift of stock to a minor, an adult simply registers the security in the name of the child's custodian. Our friend, Joe, for example, is custodian for Joe, Jr., a minor. Incidentally, companies which in the past have been reluctant to register stock in the names of minors—because of the legal maze—now approve the idea.

Generally, the custodian can be any close relative, though provisions vary somewhat among the states. There is no minimum age for the child. And thus there no longer are any age limits on sharing the risks and rewards of capitalism.

The child always retains legal ownership of his stock; the custodian simply manages the investment until the child reaches maturity. In managing the investment, of course, the custodian may sell the securities and reinvest, if it seems prudent.

Any security can be given, and there is no limit on the amount. There is no gift tax unless the value of the stock exceeds the $3,000 annual gift allowance ($6,000 for a married couple.) Besides, stock gifts to children may also provide important tax benefits since they can help reduce the overall income tax paid by the family group.

That's the story on stock gifts to youngsters: simple and sensible.

OFFICER SPECIALIZATION

(continued from page 17)

sary to run the whole show by himself. He must rely on deputy managers with separate, specialized technical backgrounds. On the other hand, he must have some idea of what they're talking about if he's to make intelligent decisions.

If the personnel problem can be solved it will be a boon to Navy administration and operation—not to mention morale. On the other hand, the adverse reaction to Franke's recommendation makes it fairly obvious that the idea is in dire need of a selling job.

And it is an axiom of good management that the men who will carry it out must support a plan. If they don't, it's chances of working, no matter how good it looks on paper, are something less than poor.

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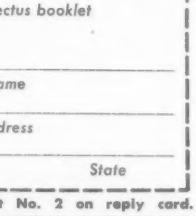

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Dates to Circle

May 6-8

1959 Electronic Components convention—Benjamin Franklin hotel, Philadelphia; jointly sponsored by the Institute of Radio Engineers, Electronic Industries Association, American Institute of Electrical Engineers, West Coast Electronic Manufacturers Association.

May 6-9

American Helicopter Society, 15th annual national forum—Washington, D.C.

May 14-15

Operations Research Society of America national meeting—Shoreham Hotel, Washington, D.C.

May 14-16

National Conference, American Institute of Industrial Engineers—Biltmore Hotel, Atlanta, Ga.

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May 19-22

Seventh Annual Human Engineering Institute—sponsored by Dunlap and Associates, Inc.; Stamford, Conn.

May 25-27

National Telemetering Conference —Denver, Colo.; sponsored by the American Rocket Society, Institute of the Aeronautical Sciences, American Institute of Electrical Engineers and the Instrument Society of America.

May 31-June 13

Second Annual Packaging Training Course—Lake Placid Club, N.Y.; sponsored by the Industrial Management Center.

June 5-6

Army Aviation Association of America, Inc.—annual meeting, Shoreham Hotel, Wash., D.C.

June 7-13

Advanced missile and rocket system design seminar—Pennsylvania State University.

June 14-27

Sixth Annual Material Handling Training Course—Lake Placid Club, N.Y.; sponsored by the Industrial Management Center.

CATERPILLAR'S PROJECT PAYDIRT

PROJECT PAYDIRT pays off again*

NEW 225 HP CAT No. 619 Two-Wheel Tractor

First two-wheel tractor to deliver four-wheel speed and roadability!

Matched with new No. 442 Series B LOWBOWL Scraper for new high production... 14 cu. yd. struck, 18 cu. yd. heaped!

This new No. 619 Series B represents a major breakthrough in two-wheel tractor-scraper design. It is the first and only broad application two-wheel machine that combines two-wheel traction with four-wheel speed and roadability. It also affords new type unit construction and timesaving accessibility.

The No. 619's new turbocharged engine delivers 225 HP and a torque rise of 20%—for fast acceleration. With a top speed of 30.2 MPH, it can really run—and run under conditions that slow down other make two-wheel rigs.

That's because of its roadability. The advanced Caterpillar design has achieved a tractor-scraper balance that "smooths out" rides to an amazing degree. This balance permits higher speeds for more cycles per day and less operator fatigue.

As for unit construction and accessibility, here's an example: A new swing-away dash allows ready access to the starting engine, air compressor and hydraulic pump. Entire left side of the engine can be exposed without having to disassemble any major components connected with the dash.

Like all achievements of Caterpillar's Project Paydirt, the No. 619-No. 442 has been thoroughly tested. Four years of on-the-job operation prove this: This new "all-job" rig will set new performance records on a broad range of applications.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

* ***PROJECT PAYDIRT:*** Caterpillar's multimillion-dollar research and development program — to meet the continuing challenge of the greatest construction era in history with the most productive earthmoving machines ever developed.

ADDITIONAL FACTS ABOUT THE NO. 619-NO. 442

NEW NO. 442 SERIES B LOWBOWL SCRAPER has capacities of 14 cu. yd. struck and 18 cu. yd. heaped. Exclusive LOWBOWL design provides a faster loading rate with less resistance throughout the loading cycle. Also available is the 25-ton-capacity Athey PR619 Rear Dump Trailer.

UNIT CONSTRUCTION FOR EASY ACCESSIBILITY. The transmission, differential and cable control can be removed from the tractor as a single unit. The flywheel clutch can be removed as a unit with the engine in place.

PLANETARY FINAL DRIVES. By removing six capscrews in the planet carrier cover, each axle can be removed from the tractor. Use of planetary gears has contributed materially to the over-all accessibility of the unit.

OPERATOR EFFICIENCY IS INCREASED. New 2-jack steering system provides a greater amount of turning effort *coming out* of a turn than *going into* a turn. Also, for reducing ride motion, the Torsionflex seat is supplied as standard equipment.

WIDE RANGE OF APPLICATIONS. The new No. 619 fits equally well on small jobs or large projects. Whether it is called on for a low-yardage finishing job or to move material at high speed, the No. 619 is the right machine.

ALSO: Six-speed forward, two-speed reverse constant mesh transmission • Standard wide-base 26.5-25, 24-ply tubeless tires all around—optional treads and ply ratings available • Choice of in-seat gasoline starting or direct electric starting • New dry-type air cleaner • Fuel tank capacity—85 U. S. gallons • Shipping width—10 feet, 10 inches.

CATERPILLAR

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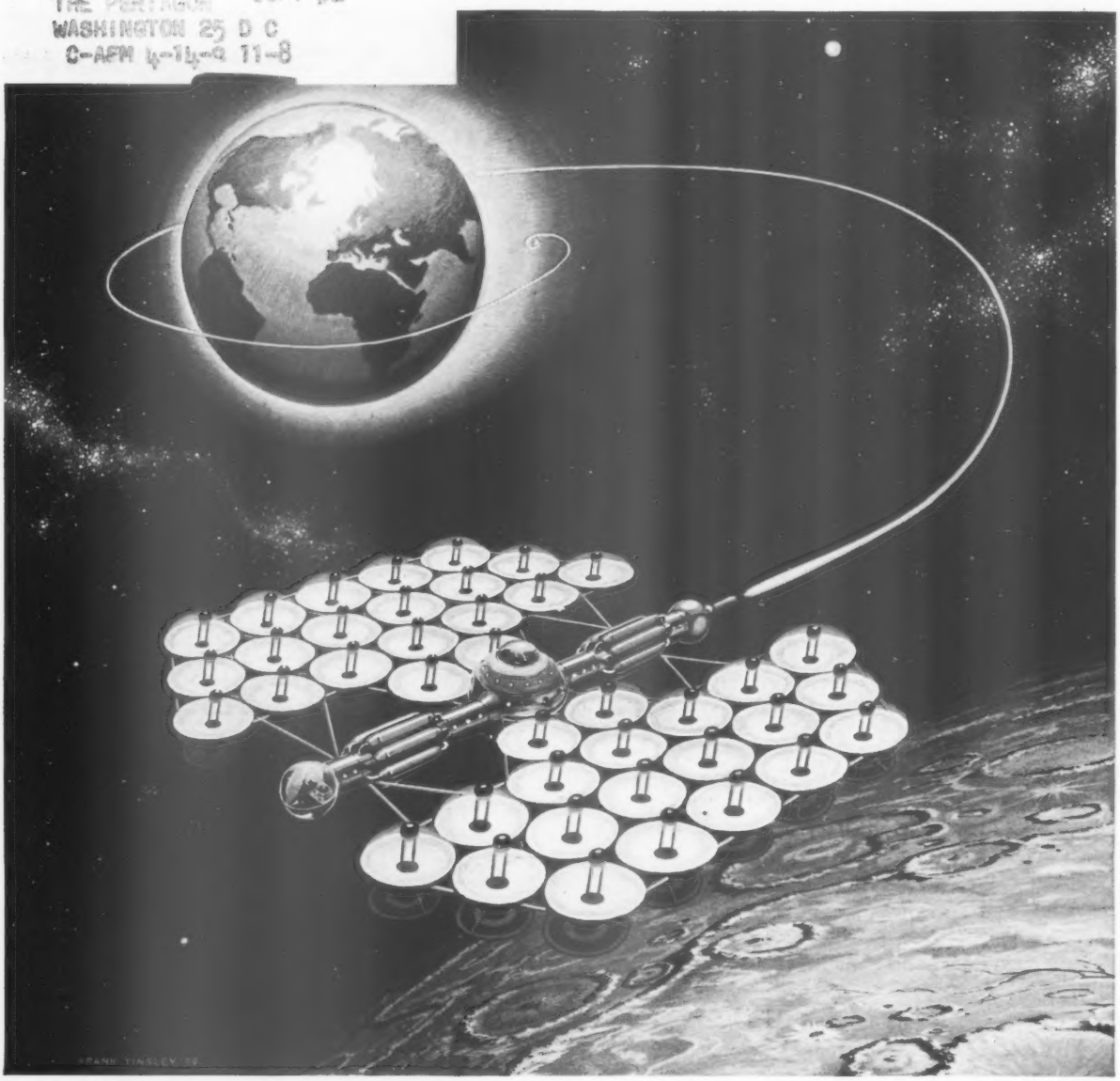

STEPS IN THE RACE TO OUTER SPACE

Cosmic Butterfly

Spreading its wings to absorb the eternal flow of solar energy is the Cosmic Butterfly, a space vehicle of a type first conceived by Dr. Ernst Stuhlinger of Redstone Arsenal.

Each of the fifty-foot parabolic mirrors in the wings concentrates the Sun's rays on a boiler at its focal point. Steam is developed, which drives a 200-kw turbo-generator in the base. Cooled by frigid outer space in heat diffusers, the steam reverts to water and is pumped back to the boiler to be used over and over again.

The current thus generated drives the main propulsion unit, an ion rocket in which powerful electric fields accelerate charged particles, shooting them from the rear of the rocket exactly as the electron gun in your TV set bombards the screen. Sunlight, then, is the power source, whereas cesium is the propellant.

While the recoil thrust is relatively small, the weightless vehicle is operating in a vacuum and the push is enough to enable the Butterfly to reach interplanetary speeds. Unlike conventional rockets, the Butterfly is under power the entire trip. Half way to its destination it turns around, and the ion thrust is used to slow the craft down to arrival speeds.

Since its thrust is entirely inadequate to cope with the gravity of major planets, the Cosmic Butterfly never lands. It is assembled in space and shuttles between artificial satellites.

The Cosmic Butterfly could carry ten passengers and 50 tons of cargo from an Earth satellite to a comparable one orbiting around Mars in about one year of continuous travel.

Inertial navigation systems will play an increasing role in the exploration of outer space. ***ARMA*** is actively supporting the Air Force's program in long range missiles and is in the vanguard of the race to outer space. ***ARMA*** . . . Garden City, New York. A Division of American Bosch Arma Corporation.

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